American Dynamics

From Tyco Security Products

VideoEdge NVR Installation and User Guide

VideoEdge 4.5

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Overview of the VideoEdge NVR

VideoEdge NVR Introduction

The VideoEdge Network Video Management System is a scalable enterprise IP video surveillance solution. It is designed as an open platform solution supporting a range of third party hardware, storage, video devices, and clients, allowing users to manage their video surveillance servers and edge devices as a single logical system.

The VideoEdge Network Video Recorder (NVR) manages the IP encoder and camera devices, records the video onto its configured storage devices, and provides clients with secure access to live and recorded video and audio. Users can use a thin-client (NVR Administration Interface) or the victor rich-client application software to configure the NVR or access the video/audio streams.

Purpose of the NVR

The NVR is the backbone for an IP-based video security system. The NVR uses TCP/IP communication to access and control the hardware networked to it. The server can be controlled directly by logging into its Administration interface homepage using a web browser or accessing it via the victor rich-client application software. Worldwide access to the NVR gives it excellent portability - any place where you have a personal computer with internet access to the web, you've got access to your video security system.

An NVR gives you control over all the features of the surveillance and security hardware networked to the NVR. Thus, from your web browser or via victor, you have control over your entire video security system.

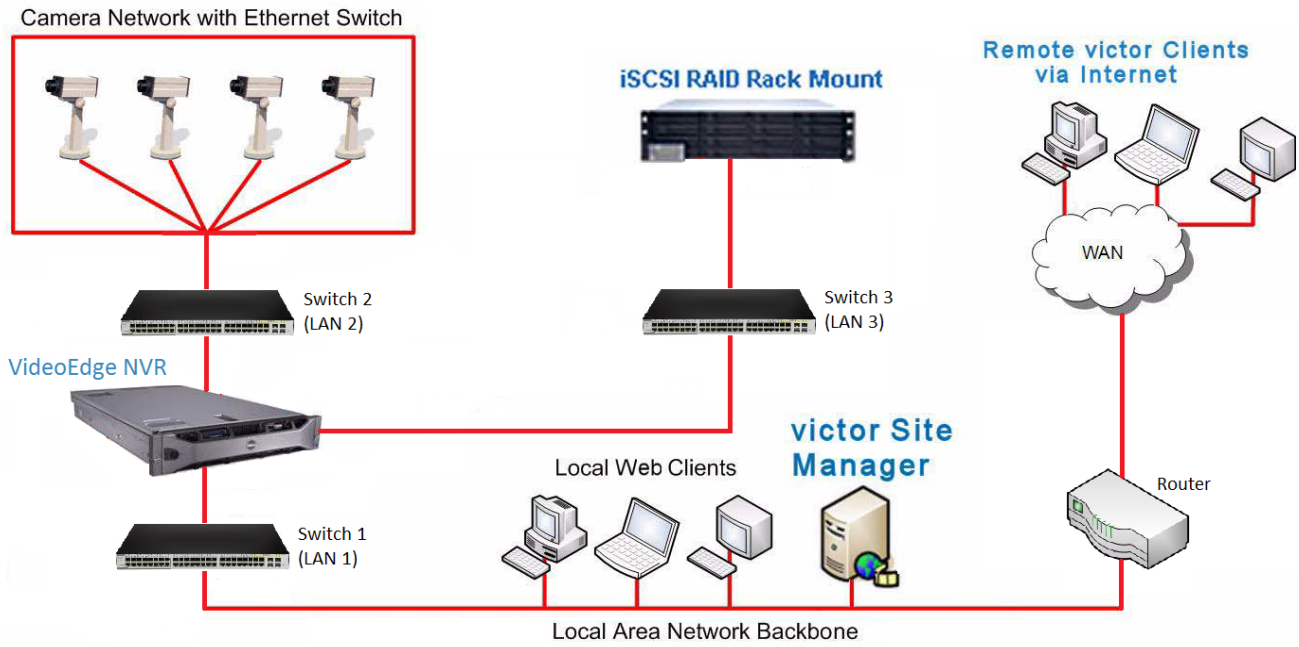
The NVR is available as either a bundled hardware solution or as software-only model that transforms a standard computer hardware system into an advanced and powerful NVR server. The NVR software is a hardware-independent platform. It supports major-brand IP cameras and encoder devices, integrates into a TCP/IP networking environment, turning an ordinary PC or server into an Enterprise Network Video Recorder.

victor Digital Video Management System

The "open" architecture of the victor Digital Video Management System line is designed so that each component can operate independently, and can interact with software applications from other product lines. The victor Digital Video Management System line includes products to address the needs of a wide range of users.

As the architecture is open, it is independent of specific hardware platforms. The NVR does not require an existing operating system as it includes it's own Linux-based operating system that can support a variety of different hardware platforms. The Figure below shows how the NVR fits into the victor Network Video Management System.

Figure 1-1 VideoEdge Network Video Components



The **NVR** manages the video camera, storage, and sensor assets for your site.

You use the NVR Administration Interface to configure and manage the NVR via a web browser. You can use these web pages to configure the NVR and its storage, cameras, and devices. Typically, the assets connected to the NVR are configured on a local TCP/IP network, isolated from the larger network, and accessible to clients via the NVR and the victor site manager.

The victor site manager provides a single point of access for users to manage multiple NVRs. The victor site manager utilizes SQL Server's database functionality to provide authentication for VideoEdge Clients, as well as central monitoring and administration of multiple recording platforms over a Wide Area Network (WAN). Refer to the victor Configuration and User Guide for more information on configuring and using the victor site manager software. The victor clients are used to monitor and configure one or more NVRs or other devices that are connected to the victor site manager network. The victor client enables a user to login and access multiple NVRs from a single Graphical User Interface (GUI). Refer to the victor Configuration and User Guide for more information on using the victor client software.

Installation

Overview

This section describes the installation and configuration process for the NVR.The NVR is supplied as either:

1 Hardware and Software bundle

2 Software Only bundle

NVR Hardware and Software Bundle

When the NVR is supplied as a pre-configured hardware and software bundle the basic system settings including time and region are already applied. The system will also have default partitioning already carried out including the required system partitions and some media partitions. If the configured media partitions are not suitable these can be edited as required after installation, for further information refer to the Storage.

The NVR is supplied with its NIC eth0 enabled, it's set to resolve a DHCP IP address or will be assigned a default static IP address of 10.10.10.10 if DHCP is not available. All other NICs of the NVR will be supplied disabled. The network settings for the NVR are configured using the Setup Wizard.

NVR Software Only

When the NVR is supplied as software only it requires full installation onto your hardware. You should ensure your hardware matches the minimum operation requirements, refer to Overview of the VideoEdge NVR

Caution

Any previously configured OS on this system will be removed and overwritten.

Hardware and Software Bundle

Installing the NVR Hardware and Software Bundle

The installation and configuration process consists of:

1 Initial boot up of the NVR

2 Setting up NVR OS User Accounts

3 Logging into the NVR desktop

4 Configuring the NVR using the Setup Wizard.

Initial Boot Up of the NVR

Procedure 1-1
Powering up the NVR for the First Time

Step	Action
1	Power up the NVR. A series of boot messages appear and the system is loaded to the License Agreement.

2 When the license agreement is displayed, select **Yes, I Agree to the License Agreement**.

3 Click **Next**.

Set the Password for the Root User account page displays. The next stage of installation process is to create user accounts.

- End -

Procedure 1-2
Setting Up NVR OS User Accounts

Step	Action

1 In the Password field in the Root User account page of the Installer, enter a password for the root user account.

Caution

It is extremely important that you will remember this password. If necessary you should write this password down and store it securely.

2 Re-enter the password in the **Confirm Password** field.

3 Click **Next**.

4 If the system does not recognize the password as secure, a message opens. Click **Yes** to confirm the use of the weak password and continue, or click **No** to change the password. A secure password should contain both upper and lower case letters, numbers and special characters.

Note:
If the passwords entered into the Password and Confirm Password fields do not match, a message opens. Re-enter the passwords to continue.

5 Create an operator user account:

a Enter the **User's Full Name**.

b Enter a **Username**.

Note:
A name is suggested depending on the User's Full Name.

c Enter a **Password**.

d Re-enter the password in the **Confirm Password** field.

e Click **Next**.

Note:
1. If the system does not recognize the password as secure, a message opens. Click **Yes** to confirm the use of the weak password and continue, or click **No** to change the password. A secure password should contain both upper and lower case letters, numbers and special characters.

2. If the passwords entered into the **Password** and **Confirm Password** fields do not match, a message opens. Re-enter the passwords to continue.

Or

If you do not want to create an operator user account:

a Leave the **User's Full Name**, **Username**, **Password** and **Confirm Password** fields empty.

b Click **Next**.

A message opens stating 'Empty User Login' and asking for confirmation to 'Leave it empty'.

c Click **Yes**.

Note:
It is highly recommended to setup an operator account when prompted in addition to the root user account. The root user account should be used for troubleshooting and system OS setup only.

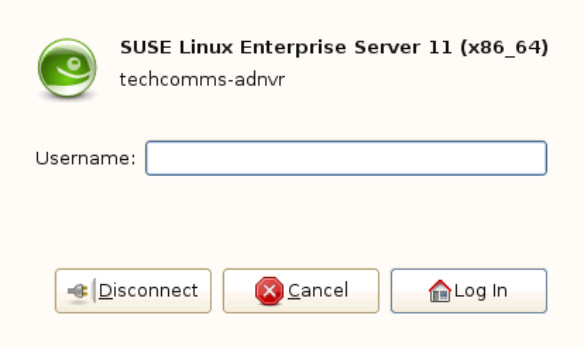
6 To continue with the installation and configuration process you need to log in to the NVR desktop.

- End -

Logging into the NVR Desktop

After setting the root password and creation of the administration user you are required to login to the NVR desktop to continue the installation and configuration process.

Figure 1-2 NVR Login Screen



Procedure 1-3
Logging into the NVR Desktop

Step	Action
1	When the system boots to the NVR login screen. Enter the **Username**. Default Username: **VideoEdge**.
2	Click **LogIn**.
3	Enter the **Password**. Default Password: **VEclient**.
4	Click **LogIn**. On successful login, the NVR desktop is displayed.

- End -

To complete the installation and configuration process you need to complete the Setup Wizard, continue to VideoEdge Setup Wizard.

VideoEdge Setup Wizard

Once the NVR has been installed you need to configure the NVR settings via the Setup Wizard. On completion your NVR will be operational.This can be accessed using the VideoEdge Administrator icon on the NVR desktop or via a

remote client. On the first time accessing the NVR user interface after installation you will be automatically be directed to the Setup Wizard.

Caution

The VideoEdge Administration icon has been added for convenience. 10.0 Firefox for SUSE Linux Enterprise SLE-11 is the supported browser for use with the NVR Administration Interface when accessing it locally on the NVR. When accessing the NVR Administration Interface from a remote client PC, Internet Explorer Versions 9 & 10 or Firefox 10 are the supported browsers. Google Chrome and Safari are not supported.

Note:
If you exit the Setup Wizard prior to completing all the steps, the wizard will save your progress and automatically return to the last page viewed of the Setup Wizard.

The wizard consists of the following menu items:

- Preparation
- System
- Network
- Devices
- System Security
- Finish

Procedure 1-4
Logging into the Wizard

Step	Action
1	Enter the Administrator **Username**.
2	Enter the Administrator **Password**.

- End -

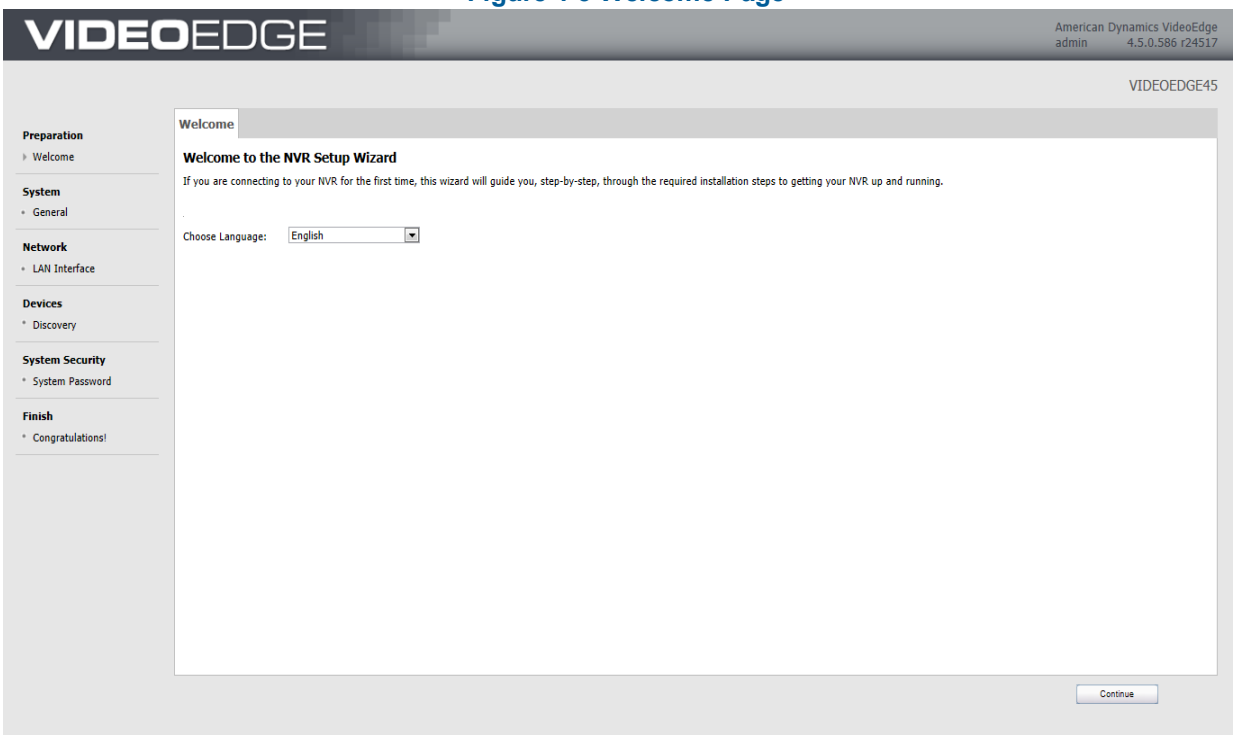
Preparation

This menu item describes the preparation stage of the Setup Wizard. The Welcome tab is displayed.

Welcome Tab

The Welcome tab is the first page of the Setup Wizard and allows you to select the language in which the Administration Interface is displayed, to advance to the next page click Start.

Figure 1-3 Welcome Page



Procedure 1-5
Selecting the Language

Step	Action
1	Select the required language from the **Choose Language** dropdown.
2	Click **Start** and advance to the next page.

- End -

System

This System menu item displays the Support ID and allows system information to be edited.

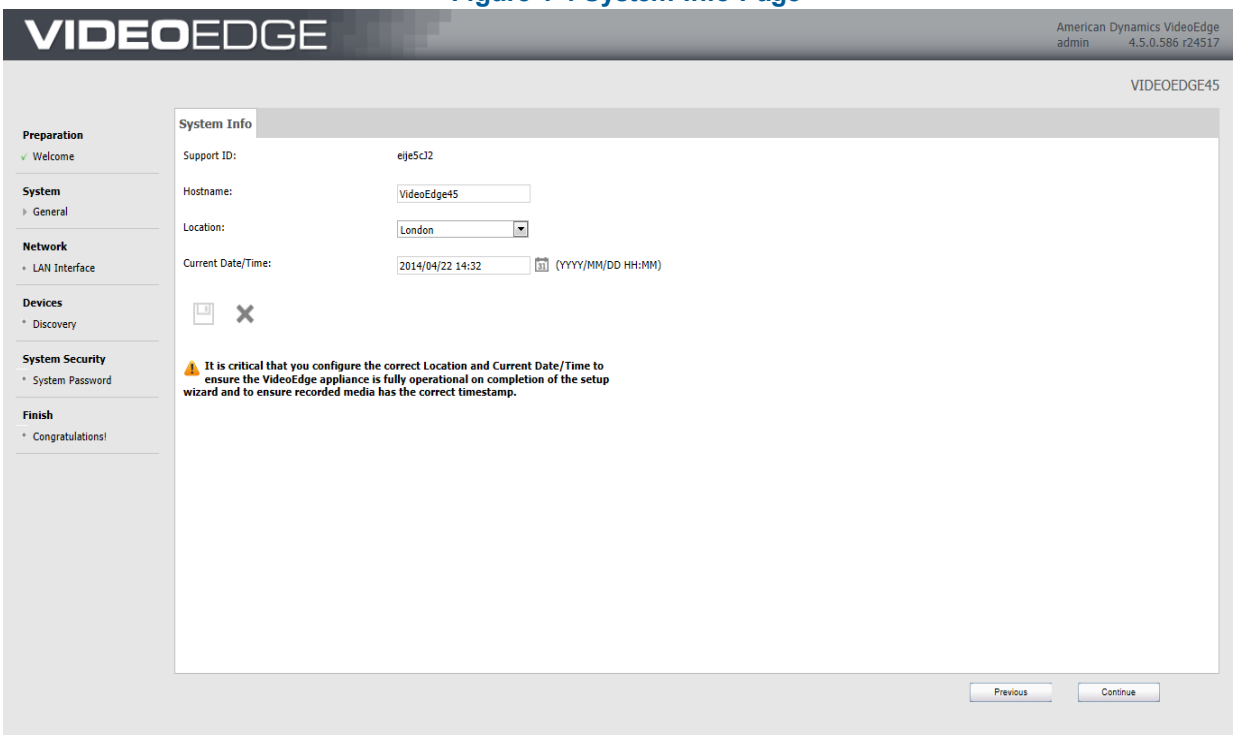
System Info Tab

The System Info tab is used to edit the NVR hostname, location, current date and current time. You can also download the NVR's public key which is used for verifying the integrity of exported clips.

Caution

It is **critical** that you configure the correct Location and the Current Date/Time to ensure the VideoEdge Appliance is fully operational on completion of the Setup Wizard and to ensure recorded media has the correct timestamp.

Figure 1-4 System Info Page



Procedure 1-6
System Info Settings

Step	Action
1	To edit the following fields: • **Hostname** • **Location** • **Current Date/Time** Select the current value. Edit the value as required.
2	Click **Save**.
3	Click **Continue** to advance to the next page.

- End -

Network

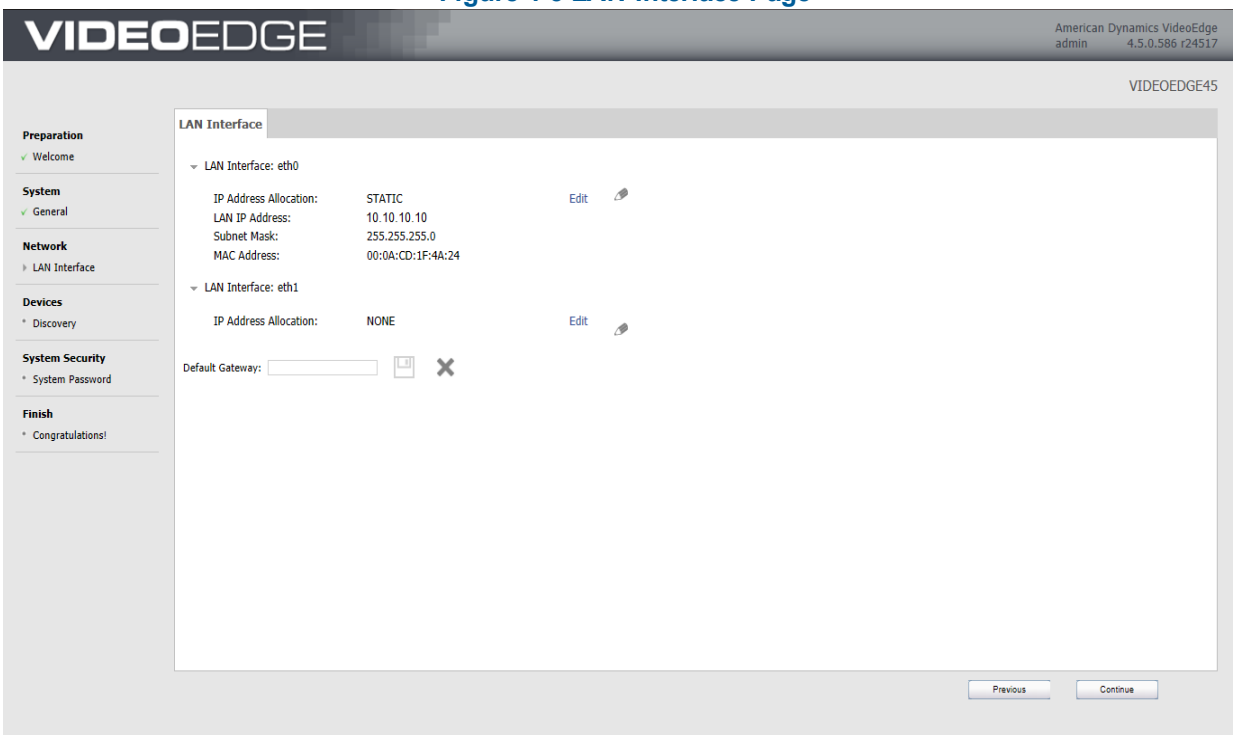
This section describes the network stage of the Setup Wizard and outline all LAN interface details.

LAN Interface Tab

The LAN Interface tab is used to edit the LAN interface settings for each NIC including IP address allocation, LAN IP address, subnet mask and IP broadcast.

The NVR can have multiple active NICs. This allows the use of dedicated camera networks.

Figure 1-5 LAN Interface Page



Procedure 1-7
LAN Interface Settings

Step	Action
1	To edit the LAN Interface settings, select **Edit** next to the NIC you want to modify. You can edit the following fields: • **IP Address Allocation** **Note:** To open the NVR Administration Interface the IP address of one of the NICs must be known, if all the IP addresses are dynamic they will vary in value. It is recommended that a NIC is configured with a static IP address and subnet mask for this reason. • **LAN IP Address** • **Subnet Mask** • **Default Gateway** **Note:** The Subnet Mask is defined by three classes of IP Address A, B and C which will determine its value. They are as follows: 1. **Class A** - First Octet Decimal Range 1-126, Subnet Mask Value **255.0.0.0** 2. **Class B** - First Octet Decimal Range 128-191, Subnet Mask Value **255.255.0.0** 3. **Class C** - First Octet Decimal Range 192-223, Subnet Mask Value **255.255.255.0**

Class A addresses 127.0.0.0 to 127.255.255.255 cannot be used and are reserved for loopback and diagnostic functions.

2 Edit the setting as required and click **Save**.

3 Click **Continue** to advance to the next page.

- End -

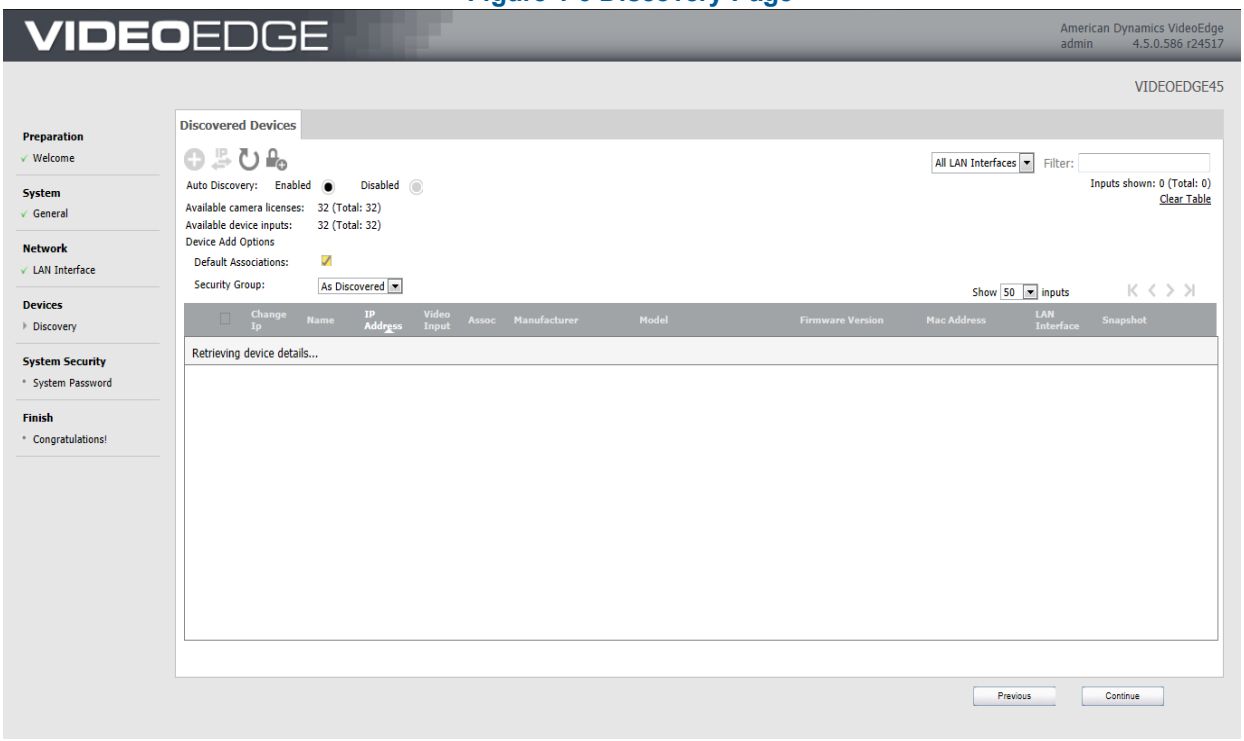
Devices

Discovery Tab

The Discovery tab automatically discovers all 'discoverable devices' on the network to add to the NVR. Multiple devices can be discovered until you reach your limit of camera licenses.

Not all cameras can be added to the NVR in this way as some manufacturers require cameras to be pre-configured prior to being added to a network.

Figure 1-6 Discovery Page



Procedure 1-8 Discovery Settings

Step	Action
	The Discovery tab automatically displays all discovered devices.

Note:
If there are devices that you expected to be discovered, but are not displayed, you may need to add these devices manually as some manufacturers do not have Discovery configured by default.

1. (Optional) Select the camera network **NIC** from the dropdown if you want to search for cameras on a particular NIC instead of across all NICs.
2. (Optional) Select the checkbox(es) of the device(s) you want to edit and click **Change IP** to edit the IP address of a camera.
3. (Optional) Select the checkbox(es) of the device(s) you want to add to a Security Group and click **Add Security Group**.

   Refer to Security for further information.
4. Select the checkbox(es) for the device(s) you want to add to the NVR from the Discovered device list.
5. (Optional) De-select the **Default Associations** checkbox if video / audio association is not required.
6. Click **Add**.

   The imported device(s) are displayed in the Video / Audio List tab
7. Click **Continue** to advance to the next page.

Note:
For further information on Camera and Device Discovery refer to Discovery for further information.

- End -

System Security

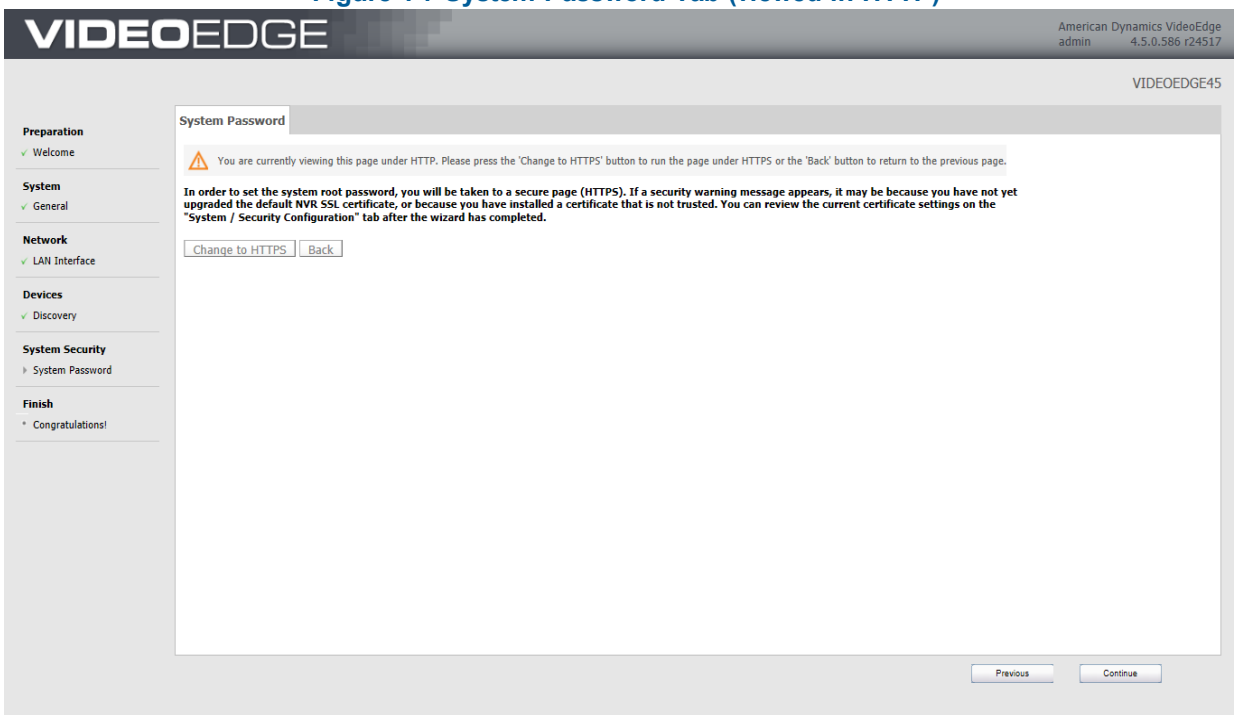
System Password Tab

The System Password tab allows you to change the root password for the NVR.

Caution
It is highly recommended for security reasons that you change the root password.

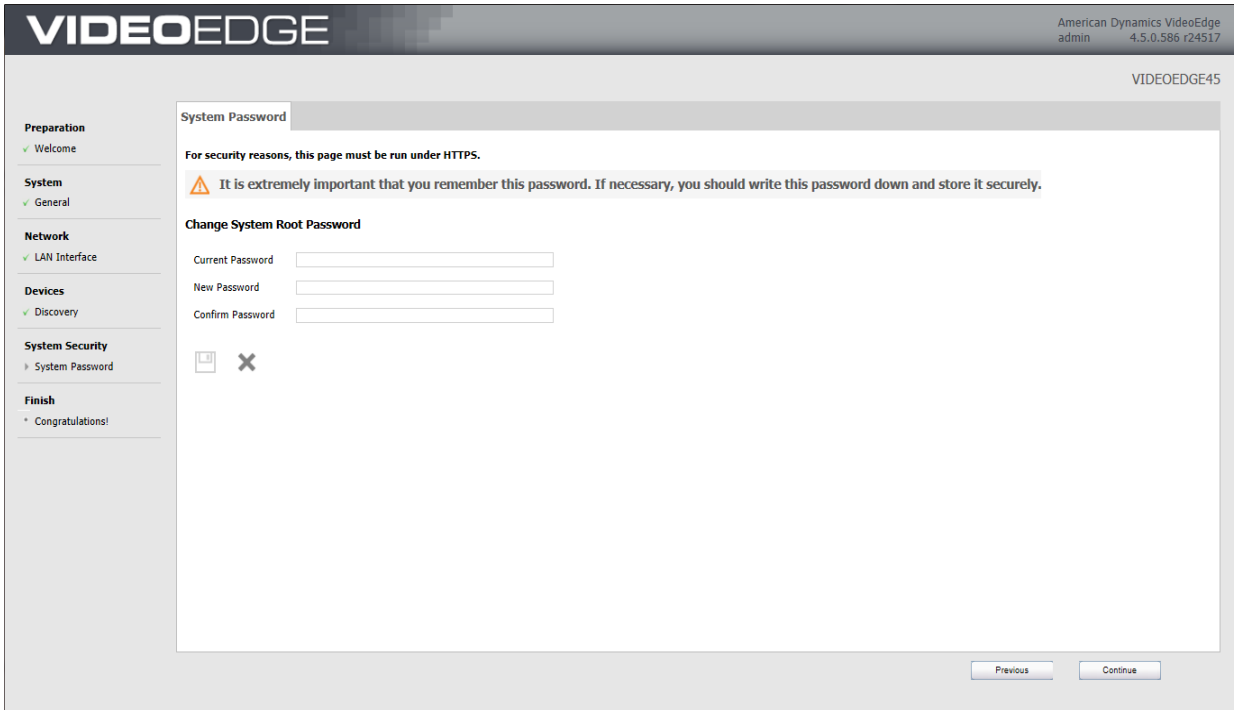
Note:
For security reasons, the System Password page must run under HTTPS.

Figure 1-7 System Password Tab (viewed in HTTP)


VIDEOEDGE
American Dynamics VideoEdge
admin 4.5.0.586 r24517
VIDEOEDGE45
Preparation
Welcome
System
General
Network
LAN Interface
Devices
Discovery
System Security
System Password
Finish
Congratulations!
System Password
You are currently viewing this page under HTTP. Please press the 'Change to HTTPS' button to run the page under HTTPS or the 'Back' button to return to the previous page.
In order to set the system root password, you will be taken to a secure page (HTTPS). If a security warning message appears, it may be because you have not yet upgraded the default NVR SSL certificate, or because you have installed a certificate that is not trusted. You can review the current certificate settings on the "System / Security Configuration" tab after the wizard has completed.
Change to HTTPS
Back
Previous
Continue

Procedure 1-9
Changing the System Password

Step	Action
1	Click **Change to HTTPS**. A browser warning page displays to state there is a problem with the website's security certificate.
2	Select **Continue to this website (not recommended)**. **Note:** Wording may differ between browsers. The System Password page displays in HTTPS.



3 Enter the **Current Password**.

4 Enter the **New Password**.

5 Re-enter the New Password in the **Confirm Password** field.

Caution

It is extremely important that you remember this password. If necessary, you should write this password down and store it securely.

6 Click .

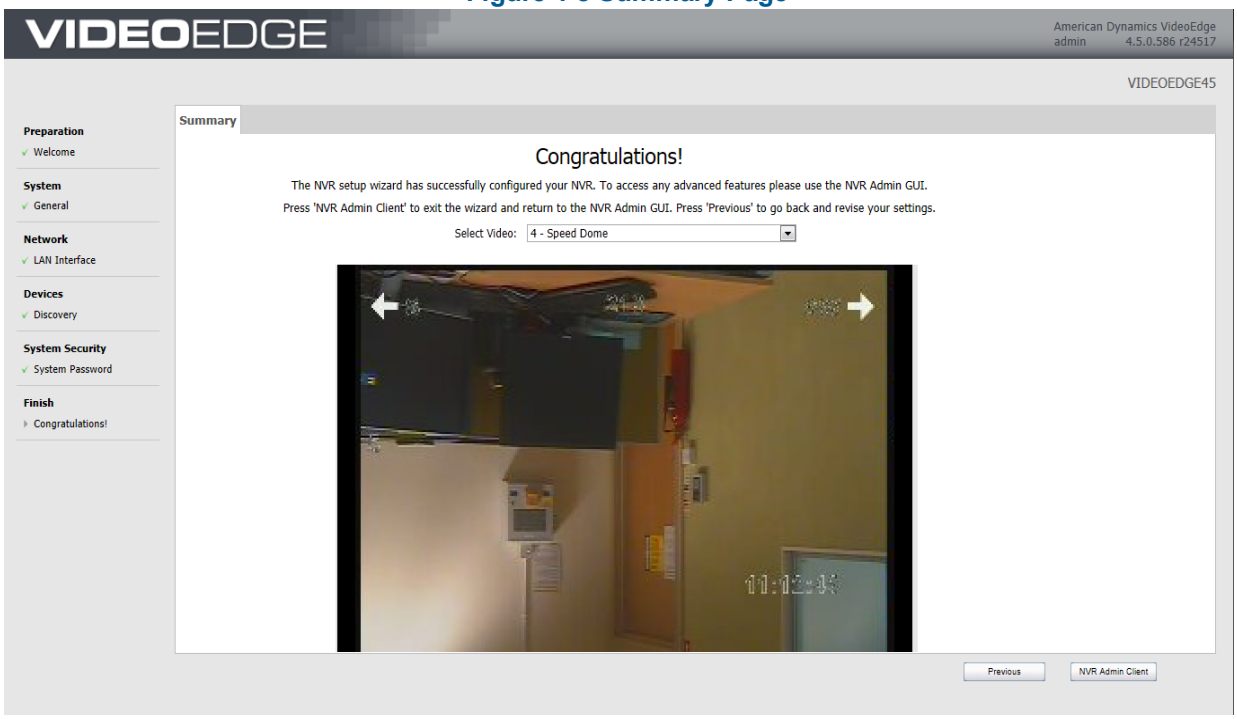
7 Click **Continue** to advance to the next page.

- End -

Finish

The Setup Wizard is now complete, you can use view video using the **Select Video** dropdown or exit the wizard to the NVR Administration Interface.

Figure 1-8 Summary Page



NVR Software Only

This section details the installation and configuration process for an NVR software only package.

Before installation you must ensure that the system drive is connected to the SATA 0 location on the motherboard.

Caution

Any previously configured OS on this system will be removed and over written.

Installing the NVR Software Only

The installation and configuration process consists of:

1 Booting the system using the NVR software disk or USB

2 Accepting the license agreement

3 The Self Installer initiates

4 A system reboot after basic installation

5 Logging into the NVR desktop

6 Configuring the NVR using the Setup Wizard

Boot your Computer/Server Using the NVR Software CD or USB

To initialize the installation of the NVR, the system must boot from the software CD or USB.

Procedure 1-10
Boot your Computer/Server Using the NVR Software CD or USB

Step	Action
1	Insert the NVR software CD into the optical drive or insert the NVR Installation USB drive into one of the available USB ports and restart your computer/server. **Note:** If you are installing from a USB drive, ensure that no other USB drives are inserted during installation.
2	The NVR boots from the CD or USB drive and the installation options menu opens. **Note:** If the NVR does not boot from the disk, intercept the Boot Loader by pressing the required function key. Please check your computer/server function key to enter Boot Loader. Then select the required drive and press Enter.
3	From the installations option menu select **Install / Restore_VideoEdge_NVR_Release_4.5.0** and press **Enter**. **Note:** After approximately 20 seconds the installation will automatically start in this mode. A Loading Linux Kernel pop up displays followed by a series of boot messages. This process may take several minutes. **Note:** The VideoEdge NVR software will install the minimum required Linux Operating System to run the NVR (The NVR software is installed as an appliance).
4	Read and Accept the license agreement by selecting **Next** and selecting **Yes**. The self installer will initiate; progress will be displayed during installation.
5	Once self installer has completed and **Reboot NVR** when prompted.
6	Remove installable media.
7	When the GRUB screen displays, ensure VideoEdge is selected and press **Enter**. The VideoEdge desktop will load.
8	Enter your **Username**. Default Username: VideoEdge
9	Select **Log in**.
10	Enter your **Password**. Default Password: VEclient
11	Select **Log in**. The NVR Setup Installer Wizard will be launched. Refer to the VideoEdge Setup Wizard section above for further information.

- End -

Using the NVR Administration Interface

Overview

The NVR Administration Interface allows users to interact with the NVR. This provides information about the server and allows you to modify the server's settings. The NVR interface is accessible via a web browser, through victor unified client or locally on your hardware. All pages on the web client are static. You must refresh your browser to keep all information current.

To access the NVR Administration Interface from a remote workstation, you must know its IP address and have a User name and Password combination that is valid for the NVR.

A remote workstation logging into the NVR using the Administration Interface must have Java 6 or above installed. If the workstation is connected to the Internet, but does not have Java installed, you must download Java from its website http://www.java.com. You must also enable javascript on your browser.

To access the NVR through victor unified client, you must add the NVR Recorder to your recorders in the device list in victor client. For information on how to add the NVR recorder to victor refer to Setting Up Recorder Devices in the victor Configuration and User Guide.

This section explains how to log into the NVR Administration Web Interface, access the NVR Administration Interface via victor unified client and provides an overview of the user interface.

Logging into the NVR Administrator Interface via a Web Browser

To access the NVR Administrator Interface you must log in. There are two user accounts, **System Administrator** and **Operator**.

If you log in using a **System Administrator** account you will have access to configure and edit all settings of the NVR. If you log in using a **Operator** account, you do not have permissions to edit any of the settings, you can only view the current settings and view live video.

Procedure 1-11
Logging into the NVR Administrator Interface via a Web Browser

Step	Action
1	Launch your web browser and enter the NVR IP address into the **URL** field.

Enter **https://NVR_Server_IP_Address**, where **NVR_Server_IP_Address** is the IP address of the machine running the NVR software, for example, **http://192.187.100.21**

2 The NVR login dialog box opens. Enter your **User name** and **Password**.

User name: **admin**

Default Password: **VIDEO!edge23**

Or

User name: **operator**

Default Password: **VideoEdge**

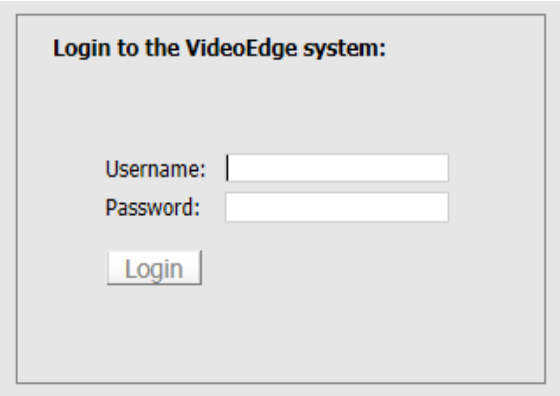
Note:
1. You are asked to login/authenticate when you:

- First log on to the NVR Administrator Interface.

- Are already logged on and your user access is changed.

2. If you have changed the account passwords, use these in place of the default password.

Figure 1-9 NVR Login Dialog



3 Click **OK**.

The Administration interface for the NVR opens.

- End -

victor NVR Administration Interface

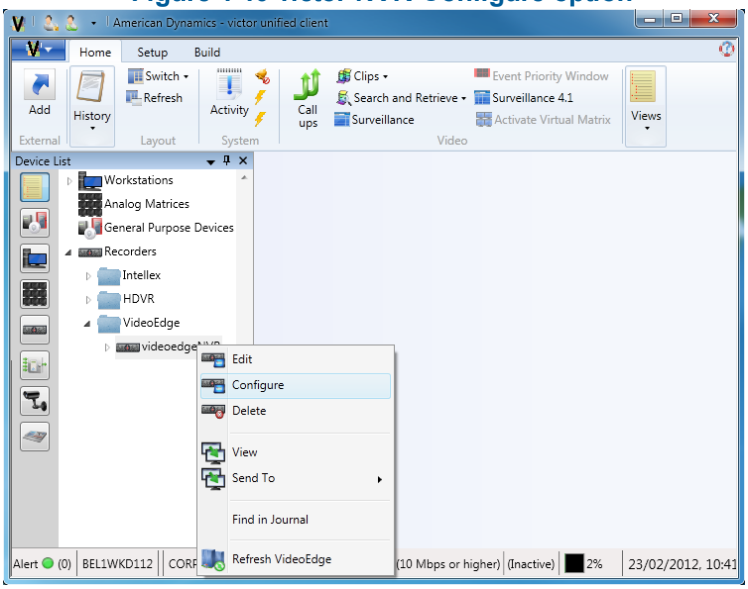
To access the victor NVR Administration interface you must have the NVR added as a recorder in the device list on your victor client. For information on how to add the NVR recorder to victor refer to the victor Configuration and User Guide.

By configuring the NVR through victor you can configure your NVR in exactly the same way as via the web Administration interface. However, when using victor you do not have the option to view live video. Instead use the **Surveillance** pane in the victor client to view NVR cameras in live mode.

Procedure 1-12
Accessing the victor NVR Administration Interface

Step	Action
1	In the victor client, expand **Recorders** in the Device List.
2	Expand the **VideoEdge** folder.
3	Right-click on the NVR recorder you want to configure.

Figure 1-10 victor NVR Configure option



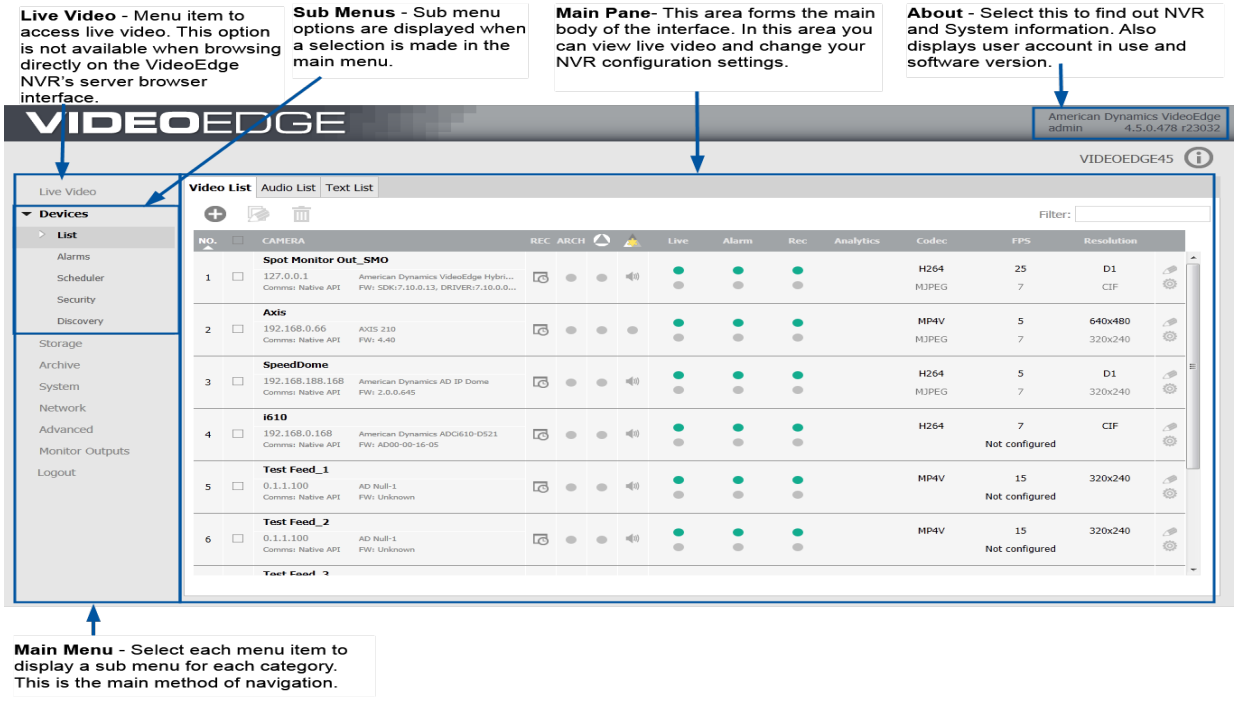
4 Select **Configure**.

The NVR Administration interface opens.

- End -

Navigating the NVR Interface

Figure 1-11 NVR Interface



To navigate the NVR Interface and access the required configuration settings, use the menu and sub menus down the left of the page.

The menu is divided into several main areas:

- **Live Video** (web only)
- **Devices**
- **Storage**
- **Archive**
- **System**
- **Network**
- **Advanced**
- **Logout** (web only)

Each menu is further divided into sub menus for easy navigation to the required configuration settings.

Live Video Menu

The Live Video menu item is only available through the web NVR Administration interface. This section has sub menus;

- **1 Camera View:** Allows you to view and edit configuration for a single camera connected to the NVR.
- **2x2 Camera View:** Allows you to view and edit configuration for up to 4 cameras simultaneously that are connected to the NVR.

Devices Menu

The Devices menu has sub menu items;

- **List** - From here you can view a list of all devices connected to the NVR and view a summary of their configuration status. You can add and remove devices or edit/batch edit cameras configuration settings.
- **Alarms** - You can create camera alarms, these may be for specific regions of a cameras view. You can also select different types of alarm trigger, for example Motion Detection or Video Intelligence.
- **Schedules** - The scheduler allows you to specify the recording mode (including no recording) that is active at scheduled times during the day.
- **Security** - The security page allows you to create and maintain camera password groups.
- **Discovery** - This section allows you to use auto-discovery to add cameras to the NVR.

Storage Menu

The Storage menu has sub menu items;

Basic: Use the Basic storage configuration option to assign devices available on the NVR as storage devices, edit media folder settings of storage devices, and to allocate a vault media quota

Advanced: Use the Advanced configuration options to assign storage devices and cameras to Storage Sets.

Archive Menu

The Archive menu has sub menu items;

- **Archives** - Use to add/remove and configure Archive Destinations.

- **Settings** - Sub menu consists of two pages. Use the **Global Settings** page to configure Automatic Archiving, Archive Culling, Retry Count and Retry Interval. Use the **Availability** page to configure time periods when recorded video can be written to the archive.
- **Archive Scheduler** - Sub menu consists of three pages. Use **Schedules** page to enable the Archiving Scheduler, create and edit Archiving Schedules.
- **Device List** - Use to edit the Archiving Mode, Quality and Maximum Archiving Retention Period.
- **Jobs** - Use to view or delete currently queued Archiving operations.

System Menu

The System menu has sub menu items; **General**, **Users and Roles**, **Licensing**, **Templates**, **Backup/Restore** and **Update Software** and Security Configuration..

- **General** - Use to configure and edit general system information.
- **Users and Roles** - Use to edit role password settings.
- **Licensing** - Use to view your VideoEdge NVR license information, apply a license or upgrade your license.
- **Templates** - Sub menu consists of two pages. Use the **Save Template** page to create a custom template based on the settings that are currently configured within the NVR, these include Camera Settings, Storage Settings, User Information, Network Settings, Email Settings and Failover Settings. Use the **Import Template** page to apply an existing template file to the NVR which will edit its settings accordingly.
- **Backup/Restore** - Sub menu consists of two pages. Use the **Backup** page to create a backup of the Camera settings, System Settings, User information, DHCP Settings and NTP Settings. Use the **Restore** page to upload a backup file to restore the NVR settings to the configuration of that Backup file.
- **Update Software** - Use to browse and upload a software upgrade package.
- **Security Configuration -** Use to configure web server configuration, create self-signed certificates/create certificate requests, enable/disable remote access and change the system password.

Network Menu

The Networks menu has menu items;

- **General** - Use to configure general network settings such as the Domain Name, Domain Name Servers, Default Gateway, RTSP Port, NTP Status and NTP Servers.
- **LAN Interface** - Use to configure the available LAN interfaces. Each interface provides the option to configure the IP Address allocation, LAN IP Address, Subnet Mask and IP Broadcast Address. If IP Address allocation is set to either **None** or **DHCP** you will be unable to edit any of the entry fields. The menu will also display the MAC Address of each Network Interface Controller (NIC) for information purposes.
- **DHCP Server** - Use the **DHCP Server** page to configure the DHCP Status for each NIC. The start and end range of the IP Addresses to be included for each NIC during automatic searches for IP Devices can also be configured. Use the **DHCP Status** page to view active devices which have been assigned an IP address by the NVR when it is acting as a DHCP server.
- **WAN Settings** - Used to configure the NVR for operation on a Wide Area Network. In the WAN Settings you can configure the WAN IP Address, HTTP Port, Secure HTTP Port and the Streaming Configured Port.
- **Dynamic Bandwidth -** Use to configure bandwidht throttling, when disabled there is no framedropping or transcoding invoked. In the bandwidth throttling settings you can enable Transcode, select the number of streams to be transcoded, up to four, select the Bandwidth Priority, Traffic smoothing, LAN and WAN bitrate caps.

Advanced Menu

The Advanced Menu has sub menu items;

- **Failover** - Use the **Failover** page to configure the NVR to take over the camera and system settings of another NVR on the network should it fail. Also use to view Failover events which have occurred using the search tool in the **Failover Events** page.
- **Storage Statistics** - Use the **Rec Performance** page to view a graph plotting the recording performance of each storage set. Use the **Disk Activity** page to view a graph plotting the disk activity for a specific media folder over a specific time period. Use the **Storage Sets** page to view storage statistics for each Storage Set, use the **Media Devices** page to view storage statistics for each Device and use the **Video** page to view storage statistics for each Camera.
- **Stream Statistics** - Use the **Video Rec Statistics** page to view a table of information relating to the recording process of each camera added to the NVR. Use the **Audio Rec Statistics** page to view a table of information relating to the recording process of each audio device added to the NVR. Use the **Device Streams** page to view a summary of the configured stream settings for each device.
- **Archive Statistics** - Use to view graphs plotting the Total Throughput for all archives and Throughput per archive.
- **Logs** - Use the **Retrieve Logs** page to customise the search criteria for retrieving log files, the criteria includes date and time range searches, options to retrieve camera logs, recording pipeline descriptions, camera firmware details and core files. The maximum size of the camera log file can be selected from a predefined dropdown list. The **FTP Log Management** page provides the option to upload log files to an FTP server. The **Event Logs** page is used primarily by American Dynamics technical support for troubleshooting. It displays informational and error-related events that have occurred on the NVR system. The **Connection** page displays the Camera Connection Errors that have occurred. The **Camera Logs** page provides information on camera reboots, changed to camera recording status, and the use of Pan-Tilt-Zoom (PTZ) and other controls. The **Audit Trail** page provides information on changes which have been made by a privileged user including; system date/time, software upgrade, FTP log management, user login passwords and network settings.
- **Image Detection** - Use to determine if a camera on the NVR is recording a very dark or potentially black video. Once configured the test will run for each camera on the server once every minute.
- **Email Alerts** - Use the **Email Alerts** page to add email addresses to receive a number of predefined alerts. The **Alert Logs** page displays a log of email alerts which have been transmitted from the NVR.
- **Ping** - Use to test communication between the NVR and other devices using a ping command.
- **Connected Clients** - Use to display the IP Address of the device viewing the NVR via a client, for example, victor unified client, VideoEdge Client or QuickTime. An entry for each camera being viewed from the NVR is displayed with the corresponding IP Address, client type and streaming protocol.
- **Reset to Factory Defaults** - Use to reset the following of the NVR's settings; **Storage**, **Failover**, **User Passwords** and **Alarm** settings. **Saved Media files (video/audio)** can be erased, retained or retained and re-indexed. Carrying out a Reset to Factory Defaults will have no affect on the NVR's Linux based operating system.
- **Shutdown** - Use to Restart NVR Services, Reboot the NVR and to Shutdown the NVR.

Procedure 1-13
Navigating the NVR Interface

Step	Action
1	Select the required menu item from the main menu on the left-hand side of the page. The selected menu item expands to display a sub menu list of items.

Note:
Live Video menu option is not available when browsing directly on VideoEdge NVR's server browser interface and is only available when connected from a remote system browser.

2 Select the required item from the sub menu list.

The relevant configuration settings are displayed in the main pane of the window.

3 (Optional) Select the tabs at the top of the main pane to navigate between pages.

- End -

Once the NVR system has been configured you can view live video streams. You can view live video using the Live Video menu if you are remotely accessing the NVR Administration Interface.

If you access the NVR Administration Interface via victor client, the Live Video menu item is not available. Use the Surveillance window in victor Client to view live video.

Live Video

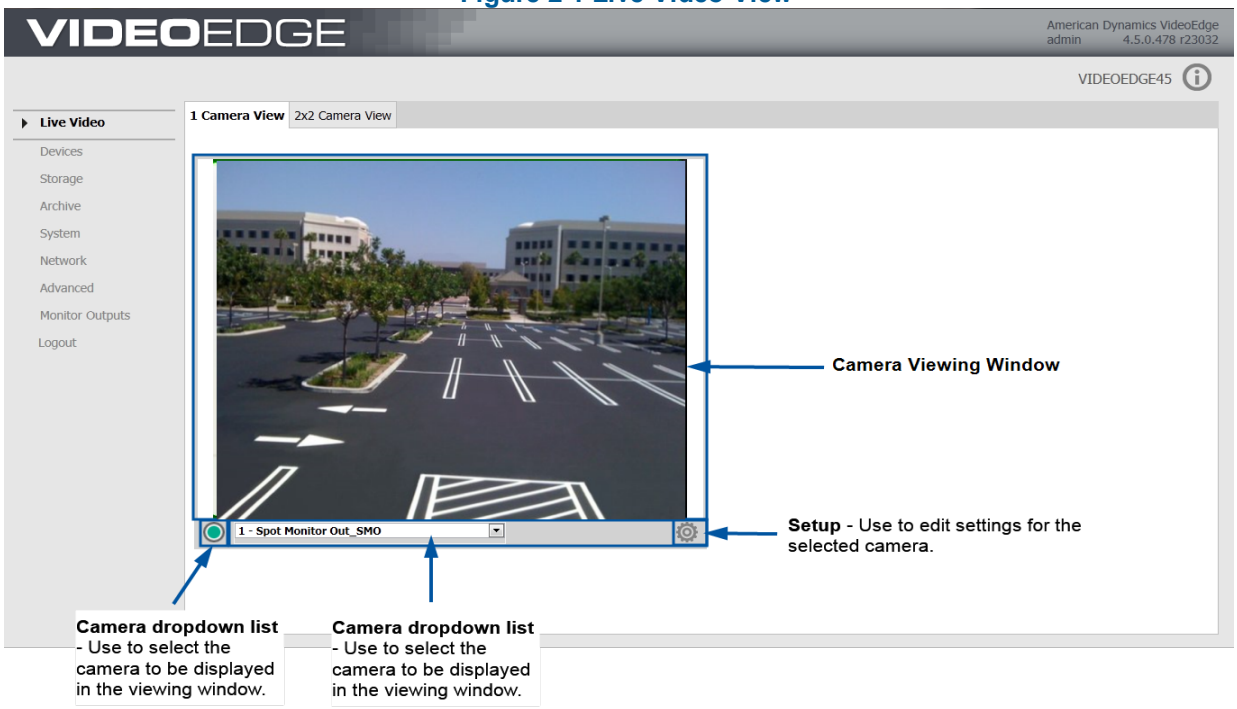
The camera views on an NVR can display live video up to a maximum of 4 live video streams. A live audio stream is not available on the NVR Administration interface. To listen to audio use victor unified client.

Viewing Live Video on the NVR Web Interface uses Apple QuickTime, you must have a QuickTime player installed to be able to view video. This allows you to view video within the web interface and as stand alone QuickTime windows.

You can download it from www.apple.com/quicktime. If you try to view Live Video and do not have QuickTime installed you will be notified that a plugin is required. Selecting to Install the plugin will direct you to the Apple website.

You must have your storage and cameras configured before you can view live video.

Figure 2-1 Live Video View



Procedure 2-1 Viewing Live Video

Step	Action
1	Select **Live Video** from the main menu.
2	Select **1 Camera View** tab

Or

Select **2x2 Camera View** tab.

3 Select the camera(s) you want to view from the **Select camera to view** dropdown.

The camera's live video stream displays in the viewing window.

- End -

Viewing Live Video with QuickTime

You can click on the viewing area of a camera to open a QuickTime viewer showing that camera's video stream.

Figure 2-2 QuickTime Viewer

Procedure 2-2
Opening a QuickTime Viewer for a Camera

Step	Action
1	From any camera live view, click in the camera viewing window. A QuickTime Internet Authorization dialog box opens.
2	Enter your **User ID**.
3	Enter your **Password**.
4	Click **OK**.

- End -

Devices

Cameras, audio devices and text devices are added and configured using the **Devices** menu of the NVR Administration Interface.

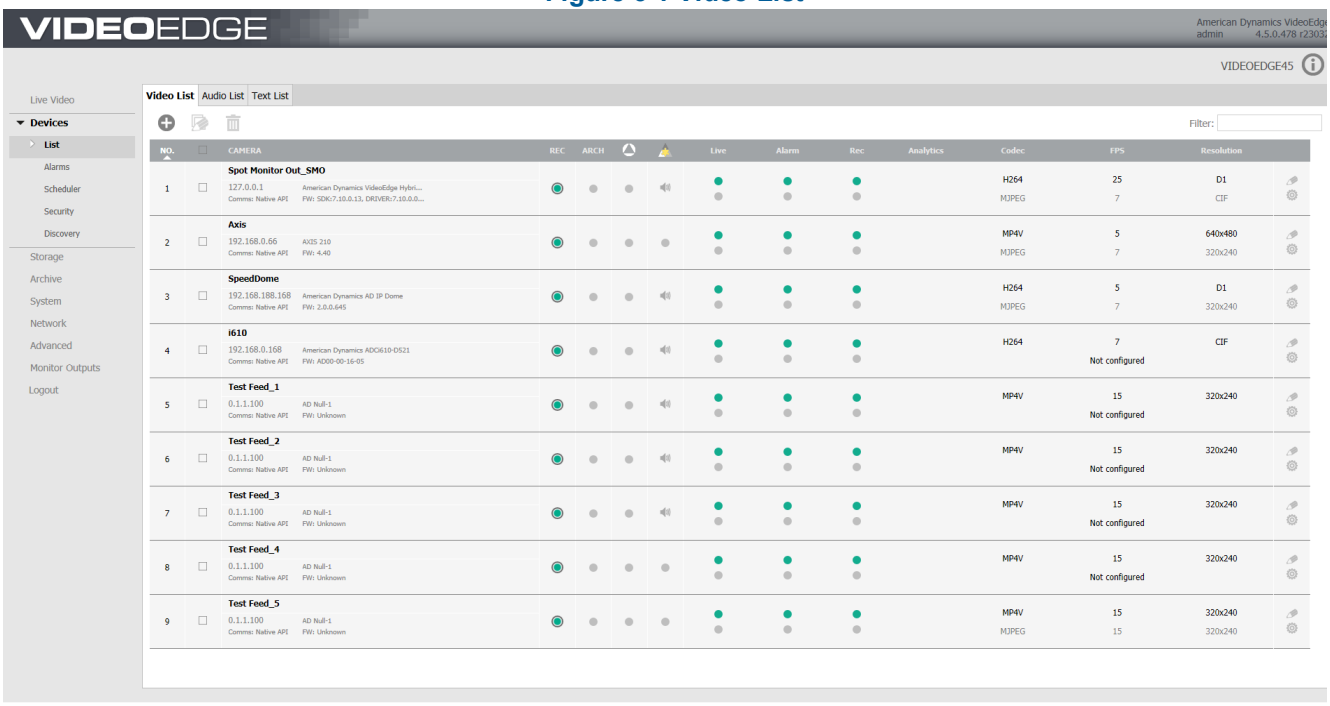
The **Devices** menu has the following menu items;

- **List** - From here you can view a list of all devices connected to the NVR and view a summary of their configuration status. You can add and remove devices or edit/batch edit cameras configuration settings.
- **Alarms** - You can create camera alarms, these may be for specific regions of a cameras view. You can also select different types of alarm trigger, for example Motion Detection or Video Intelligence.
- **Scheduler** - The scheduler allows you to specify the recording mode (including no recording) that is active at scheduled times during the day.
- **Security** - The security page allows you to create and maintain camera password groups.
- **Discovery** - This section allows you to use auto-discovery to add cameras to the NVR.

List

The **List** section provides a summary of all devices connected to the NVR and outlines configuration settings that are available to view and edit. It is separated into three tabs displaying a list of all cameras, audio devices and text device.

Figure 3-1 Video List



Viewing the Device List

The device list provides a snapshot of the basic settings available on the NVR for all camera, audio and text devices depending on the tab selected

Procedure 3-1 Viewing the Device List

Step	Action
1	Select the **Devices** menu.
2	Select **List**.
	The Video List tab displayed.
3	(Optional) Select the **Audio List** tab to view the Audio List.
	Or
	(Optional) Select the **Text List** tab to view the Text List.

- End -

Sorting the Device List

The device list can be sorted alphanumerically by a selected column in ascending or descending order.

Procedure 3-2
Sorting the Device Lists

Step	Action
1	Select the **Devices** menu.
2	Select **List**. The Video List tab displays.
3	(Optional) Select the **Audio List** tab to view the Audio List. Or (Optional) Select the **Text List** tab to view the Text List.
4	Select the column header from the device list table that you want to sort by. The list is sorted in alphanumeric order.
5	Sort in ascending or descending order: a Select to sort in ascending order. b Select to sort in descending order.

- End -

Filtering the Device List

The device list has a Filter feature which can be used to display specific device records. The filter feature will look at the criteria entered and compare this against all fields in the device list.

Procedure 3-3
Filtering the Device Lists

Step	Action
1	Select the **Devices** menu.
2	Select **List**. The Video List tab displays.
3	(Optional) Select the **Audio List** tab to view the Audio List. Or (Optional) Select the **Text List** tab to view the Text List.
4	Enter the filter criteria into the **Search** field. The device list is filtered to display only devices that meet the criteria entered. **Note:** The device list will filter as you type the criteria into the **Search** field. As the criteria gets more specific the list filters accordingly.

- End -

Video List

The Video List tab displays the cameras which have been added to the NVR. Devices can be added, edited, removed and batch edited. Advanced settings can also be configured.

The table below provides a description of each field displayed.

Table 3-1 Video List Summary Table

Field	Description
No	Device slot number.
Name and IP Address	Device name as given when adding the device to the NVR. Device IP address.
Device Information	Device Manufacturer and Model FW: Current Firmware version on the device Communications Type.
Rec	Displays the device recording state. There are four available options to select: • Recording Off • Recording Always • Only Record on Alarm • Recording Always With Alarm On If the scheduler is enabled, you cannot change the device recording state and the icon, is displayed in the field.2
Arch	Indicates if archiving is enabled for the device. The archiving options available are: • Archiving Disabled • Archive all video • Archive only alarm video
Analytics	Indicates if analytics are set on the device.

Field		Description
		The analytic options are: • Analytics Off • Motion Detection • Video Intelligence (This ecompasses object detection, direction, linger, enter, exit and abandoned/removed). • Edge Based.
Associations		Indicates the device's associations, hover the cursor to display information. The following devices can be associated: • Video • Audio
Stream 1 / Stream 2	Live	Indicates that this stream will be used for live streaming.
	Alarm	Indicates that this stream will be used for any alarms that are recorded.
	Rec	Indicates that this stream will be used for non-alarm recording.
	Analytics	Indicates that this stream will be used for executing analytics (motion detection or video intelligence). **Note** If an alarm is raised for motion detection, the alarm stream is used to record the alarm.
	Codec	The camera codec.
	FPS	The camera FPS.
	Resolution	The camera resolution.

Adding Devices

Cameras can be added to the NVR in the **Video List** tab. There are two methods used for adding cameras; **Manually** and using **Auto Discovery**.

1 Enter **127.0.0.1** into the **Device IP Address** field.

Manually Adding an IP Device

When a device is manually added to the NVR the default recording mode is set to "Recording Always". When adding a camera were the configuration does not support Motion Detection (using either a primary or secondary stream) then the default recording mode will be "Record Always".

Note:
The NVR is by default configured to attempt communicating with the camera using the cameras own native commands. Using native camera handlers provides the maximum number of camera features available. If the NVR does not support your camera brand, it will then attempt to use the general ONVIF communications protocol to communicate with the camera. If the camera supports ONVIF you will be able to access one or more of the camera features (for example; video, audio, PTZ, dry contact events). You can determine which communication method has been employed by the NVR from the device list.

When you add an encoder to the NVR, all cameras associated with this encoder will have the same IP address. As a result, these cameras must be assigned to the same password group and have the same dry contact settings. If you edit either the password group or the dry contact settings for one camera associated with the encoder, these settings will be updated for all cameras.

Procedure 3-4
Manually Adding an IP Device

Step	Action
1	Select the **Devices** menu.
2	Select **List**. The Video List tab displays.
3	Click
4	Enter the **Device Name**.
5	Enter the **Device IP Address** of the device.
6	Select the **Security Group** from the Security Group dropdown. **Note:** The **Security Group** will usually be set by default. The NVR will use the manufacturer's default password to connect to the camera. However, if you have changed the password for this camera, you need to assign the camera to the appropriate password group, or create a new password group.
7	Click **Apply**.
8	(Optional) De-select the **Add All Inputs on Device** checkbox if you do not want to add all inputs on a device.
9	(Optional) De-select the **Default Associations** checkbox if you want to define custom associations after the devices have been added.
10	(Optional) Rename the devices by entering a new device name in the **Name** field.
11	Click .

If the Default Associations checkbox is unselected a window will open displaying the available inputs. For video devices a snapshot can be displayed.

The device is added to the device list.

12 Configure the device settings as required.

Note:
Devices can be added to the NVR using Discovery. For further information refer to Discovery.

- End -

Edit a Camera Name

You can update the name given to a camera as required.

Procedure 3-5
Editing a Camera Name

Step	Action
1	Select **Device** from the main menu.
2	Select **List**.
3	The Video List tab displays.
4	Click in the camera row where you want to change the camera name.
5	Select the **Name** field and enter the new camera name. Or Click in the camera row where you want to change the camera name, select the General tab and enter the new camera name into the Video Name field.
6	Click

- End -

Procedure 3-6
Editing Basic Video Settings

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List tab displays.
3	Select in the camera row for which you want to edit a video list setting. The fields available to update are ready to edit.
4	Make the required changes to: • **Name** - Use this field to update the name of the camera. • **Rec** - Use this to update the camera recording state. You can choose, Recording Off,

Recording Always, Only Record on Alarm, or Recording Always With Alarm On.

Note:
To update a camera's recording state you must ensure the device recording scheduler is disabled.

- **Analytics** - Use this to change the analytic alarm setting. You can select, Analytics Off, Motion Detection or Video Intelligence.
- **Stream1** / **Stream 2** settings. If a second stream is available on the camera, use these settings to select which stream is to be used for:

c Live video,

d Alarms, and

e Recording.

You can assign each of these to either Stream 1 or Stream 2 as required.

You can also adjust the **Codec**, **FPS** and stream **Resolution** settings for each stream.

5 Click

- End -

Removing a Device

You can remove a device from the NVR if necessary. Once you remove a device from the NVR, you will no longer be able to view live video, record media or access the device via a client.

Procedure 3-7
Removing a Device

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List opens.
3	Select the checkbox of the device(s) you want to remove.
4	Click If you are removing a camera which has an associated audio device a dialog box opens.
5	Click **Yes** to remove the associated audio device. Or Click No to keep the associated audio device. A dialog box opens for confirmation that you want to remove the device(s).
6	Click **Yes** to remove the device(s). The device(s) are removed from the NVR.

- End -

Batch Camera Configuration

Some camera settings can be batch edited. The Batch Edit tab lists the cameras currently being edited in the left pane, and the setting adjustments are made in the right pane. When a change is made to a setting, the checkbox next to the setting is checked. If you deselect the checkbox, the adjustment will not be applied.When you click apply, the changes being made are previewed, with the new settings highlighted in yellow.

Procedure 3-8
Batch Editing Camera Settings

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Select the checkbox for each camera you want to batch edit.
4	Click The Batch Edit tab displays.
5	Adjust the device settings: a **Name** - Use this field to update the name of the cameras. **Note:** When you update the name of devices using batch edit, each device will have a number appended to its name. For example, **CameraName_1**, **CameraName_2**, etc. b **Maximum Storage Per Device** - Select from the dropdown to set the maximum duration over which media recorded for these devices will be saved without being deleted. c **Storage Set** - Select from the dropdown which storage set the batch of devices will record to. d **Recording Mode** - Use this to set the recording mode for these cameras. You can choose, Recording Off, Recording Always, Only Record on Alarm, or Recording Always With Alarm On. e **Archiving Mode** - Use to set the archiving mode for these cameras. You can choose, Archiving disabled, Archive all videos or Archive only alarm video. f **Archiving Quality** - Archiving Quality is defined as a percentage of applied framerate decimation. Archiving quality is applied in 10% intervals where 10% provides the lowest quality video and 100% provides the highest quality video for archiving. g **Maximum Archiving Retention Period** - Select from the dropdown if an archiving retention period is Enabled or Disabled. h **Video Analysis** - Select from the dropdown which type of analytics to apply to this batch of cameras. i **Associate Audio** - Use to associate an audio device with the selected cameras. j **Stream Record Modes** - Set each stream to **Live**, **Alarm** or **Record**. k **Stream Configurations** - Set the stream configurations for **Codec**, **FPS**, **Resolution Quality**, **Bit Rate Control**, **Bit Rate**, **Max Bit Rate** and **Profile** in the respective dropdowns.

Note:
When you are selecting a value for the **Codec**, **FPS**, **Resolution Quality**, **Bit Rate Control**, **Bit Rate**, **Max Bit Rate** and **Profile** fields, each dropdown contains the available options followed by a number in brackets. This represents the number of cameras that support the setting over of the total number of cameras being edited.

6 Click **Apply**.

A Confirm Changes window opens with a preview of the changes being made to the selected cameras.

7 Click **Apply**.

Note:
If you do not want to make these changes to all cameras, click **Cancel** and update the settings as required.

8 A message box opens to confirm the changes were successful. Click **OK**.

Note:
If some of the changes are not successful, a summary page of failed updates opens with the failures highlighted in red. By hovering over you can view more detailed error information. Click **OK** to continue.

- End -

Audio List

Audio devices which are connected to the NVR, an encoder or part of a camera can be added to the NVR using the Administration Interface. By default an audio source which is physically built into a camera will be associated with that camera. You can de-couple the audio input when adding the device manually or using Auto Discovery. The association can also be removed at any stage using the device list.

The Audio List displays the audio devices which have been added to the NVR.The table below provides a description of each field displayed.

Table 3-2 Audio List Summary Table

Field	Description
No	Device slot number.
Name and IP Address	Device name as given when adding the device to the NVR. Device IP address.
Device Information	Device Manufacturer and Model. FW: Current Firmware version on the device.
Rec	Displays the device recording state. There are four available options to select: • Recording Off • Recording Always

Field	Description
	• Only Record on Alarm • Recording Always With Alarm On If the scheduler is enabled, you cannot change the device recording state and the icon, is displayed in the field.2
Associations	Indicates the device's associations, hover the cursor to display information. The following devices can be associated: • Video
Codec	The audio codec.
Volume	The current volume.
Bitrate	The current bitrate.

Procedure 3-9
Editing Audio Settings

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List tab displays.
3	Select the **Audio List** tab.
4	Select in the audio record for which you want to edit a audio list setting. The fields that you can update are ready to edit.
5	Make the required changes to: • **Name** - Use this field to update the name of the audio device. • **Enabled** - Use the Enabled dropdown to enable or disable audio. • **IP Address** - Use this field to update the IP address of the audio device. • **Rec** - Use this to update the camera recording state. You can choose, Recording Off or Recording Always. **Note:** To update a audio device's recording state you must ensure the device recording scheduler is disabled. • **Codec** - Use the dropdown to select the codec when available.

Note:

- **Volume**
- **Bitrate** - Use the dropdown to select the bitrate when available.

Note:

6 Click

- End -

Text List

Text devices can be added to the NVR either via serial or IP connections. Text devices provide a text based search ability when associated with camera and audio devices; for example a compatible cash register can be added to the NVR which will record the text data received from the register. Cameras and audio devices in the vicinity of the cash register can then be associated with it, when you perform a text based search using the VideoEdge Client, associated video and audio will be returned which was recorded at the time the text data was received.

The Text List displays the serial and IP text devices which have been added to the NVR. The table below provides a description of each field displayed.

Table 3-3 Text List Summary Table

Field	Description
No	Device slot number.
Stream Name	Device name as given when adding the device to the NVR.
Comms Type	Indicates Communication type in use.
Associations	Indicates the devices associations, hover the cursor to display information. The following devices can be associated: • Video • Audio
Description	Indicates configured settings.

Configuring Port Settings Prior to Adding a Serial Text Stream Device

Prior to adding a Serial Text Stream device you should ensure it is connected to one of the NVR's USB ports or its RS232 Serial port. Once connected you are required to configure that Serial Port's communication protocol for Text Stream use.

Procedure 3-10
Configuring Serial Port Settings for a Serial Text Stream Device

Step	Action
1	Select the **Advanced** menu.

2 Select **Serial Ports**.

The Serial Ports tab displays

3 Select **Edit** next to the Serial Port you want to edit.

The Port Settings dialog box opens.

4 Select **Text Stream** from the **Protocol** dropdown.

The following default settings are applied:

- **Baud Rate** - 4800
- **Data Bits** - 8
- **Parity** - None
- **Stop Bits** - 1
- **Flow Control** - None

5 Click **Apply**.

- End -

Manually Adding a Text Stream Device

Text Stream devices can be connected via serial or IP communications, using the Text list tab.

Procedure 3-11
Manually Adding Text Stream Devices

Step	Action
1	Select the **Devices** menu.
2	Select **List**. The Video List tab displays.
3	Select the **Text List** tab.
4	Click
5	Enter a **Text Stream Name**.
6	Select the **Connection Type** from the dropdown.
7	Enter the **Line Delimiter** or click **Default** to use the default value. **Note:** If the Line Delimiter does not properly match what is used in the Text Stream then text may be lost or improperly stored in the media database.
8	(IP Only) Enter the **Port**. Continue to step 11. **Note:** The port number must match the port number assigned on the Text Stream device.
9	(Serial Only) Select the option button of the **Serial Device** you want to use. Continue to step 10.
10	(Optional) Select to edit the serial device settings:

a Enter the **Com Port**.

b Enter the **Protocol**.

c Select the **Baud Rate** from the dropdown.

d Select the **Data Bits** from the dropdown.

e Select the **Parity** from the dropdown.

f Select the **Stop Bits** from the dropdown.

g Select the **Flow Control** from the dropdown.

h Click **Apply**.

11 Click **Apply**.

- End -

Procedure 3-12
Editing Text Settings

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List tab displays.
3	Select the **Text List** tab.
4	Select in the text record for which you want to edit a text list setting. The fields that you can update are ready to edit.
5	Make the required changes to: • **Text Stream Name** - Use this field to update the name of the Text device. • **Connection Type** - For information only when device is added. • **Line Delimiter** - Use this field to update the Line Delimiter value. • **Port** - For information only when device is added.
6	Click **Apply**.

- End -

Adding Rules and Markers

Rules are text matching instructions that can be used to define real-time Text Stream alarms using the NVR Administration Interface, or to search recorded Text Streams after-the-fact using VideoEdge Client. For example, you can use a Rule to trigger an alarm whenever the string “VOID” is detected in the stream, or you can use a Rule to search for any time a particular field is greater than $20.00.

Markers are strings that identify the beginning of a new message in the Text Stream. For example, if your Text Stream contains a stream of receipts from a POS system, you can use a Marker to identify each new receipt that comes in the stream. If your receipts always have “Store 15” printed at the top, then use this as a Marker in the stream. When “Store 15” appears in the Text Stream, all the subsequent text until the next “Store 15” is seen will be stored and displayed together as a single message.

Procedure 3-13
Adding a Rule to a Text Device

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List tab displays.
3	Select the **Text List** tab.
4	Select the checkbox of the Text device you want to create a rule for.
5	Click The Rules/Markers tab displays.
6	Click The Rule Definition Window opens.
7	Enter the **Name**.
8	Enter a match in the **Match with** field.
9	Select the **Search Direction** from the dropdown. Forward by default.
10	Select the number of words from the **Jump N Results** dropdown, to skip after a match is found, to find the associated value. Default = 0.
11	Select one of the following **Criteria** from the dropdown: • **found** - Any results found. • **string** - A series of characters in Value 1 field. • **less than** - Less than Value 1. • **greater than** - Greater than Value 1. • **equal to** - Equal to Value 1 • **range** - Values between Value 1 and 2.
12	Enter a value in the **Value1** field. This is required when using string, less than, greater than, equal to and range Criteria.
13	Enter a value in the **Value2** field. This is required when using range criteria.
14	Click **Apply**.

- End -

Procedure 3-14
Editing a Rule

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List tab displays.
3	Select the **Text List** tab.

4 Select the checkbox of the Text device you want to edit a rule for.

5 Click

The Rules/Markers tab displays.

6 Select the checkbox of the Rule you want to edit.

7 Select .

The Rule Definition Window opens.

8 Edit the **Name**.

9 Edit the match in the **Match with** field.

10 Select the **Search Direction** from the dropdown.

11 Select the number of words from the **Jump N Results** dropdown.

Or

From the **Jump N Results** dropdown, select To last entry of line to skip a variable number of entries between the last match and the text value in a receipt.

12 Select the **Criteria** from the dropdown:

13 Edit the value in the **Value1** field. This is required when using string, less than, greater than, equal to and range criteria.

14 Edit the value in the **Value2** field. This is required when using range criteria.

15 Click **Apply**.

- End -

Procedure 3-15
Add a Marker to a Text Device

Step	Action

1 Select **Devices** from the main menu.

2 Select **List**.

The Video List opens.

3 Select the **Text List** tab.

4 Select the checkbox of the Text device you want to create a marker for.

5 Click

The Rules/Markers page opens.

6 Click

The Marker Definitions Window opens.

7 Enter the marker **Name**.

8 Enter the **Beginning Marker**.

9 Click **Apply**.

- End -

Procedure 3-16
Edit a Marker

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
	The Video List opens.
3	Select the **Text List** tab.
4	Select the checkbox of the Text device you want to edit a marker for.
5	Click
	The Rules/Markers page opens.
6	Select the checkbox of the Marker you want to edit.
7	Select
	The Marker Definitions Window Opens.
8	Edit the marker **Name**.
9	Edit the **Beginning Marker**.
10	Click **Apply**.

- End -

Procedure 3-17
Removing a Rule or Marker from a Text Device

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
	The Video List opens.
3	Select the **Text List** tab.
4	Select the checkbox of the Text device you want to remove a rule/marker from.
5	Click
	The Rules/Markers page opens.
6	Select the checkbox of the rule/marker you want to remove.
7	Click

- End -

Grouping Rules

Rules can be grouped together using the Group Rules checkbox, for both Text Stream alarms and searches. Grouping rules creates an 'AND' logic so that all the grouped rules must be satisfied. When the Group Rules checkbox is

selected, it applies to all rules that have been added to the alarm or search definition. Rules that have been disabled will not need to be satisfied..

Note:
When the Group Rules checkbox is applied the individual rules will not display in the Alarm Rule dropdown of an events form in the VideoEdge Client. The only selectable option available will be 'All'.

Procedure 3-18
Grouping Rules

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List opens.
3	Select the **Text List** tab.
4	Select the checkbox of the Text device for which you want to group rules.
5	Click The Rules/Markers page opens.
6	Select the **Group Rules** checkbox.

- End -

Advanced Text Device Configuration

Advanced Text Device Configuration includes creating video and audio associations with text stream devices and creating of Rules and Markers.

Creating Associations for Text Devices

Text devices can be associated with multiple cameras and audio devices.

Procedure 3-19
Associating Cameras and Audio Devices with Text Devices

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List opens.
3	Select the **Text List** tab.
4	Click in the text record for which you want to edit a text list setting. The Text Edit tab displays.
5	Select the checkbox(es) for the video and audio device(s) you want to associate with the text device.
6	Use the arrow right button to move the selected devices to the Association list(s).

7	Click **Apply**.

- End -

Procedure 3-20
Removing Associations from Text Devices

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**. The Video List opens.
3	Select the **Text List** tab.
4	Click in the text record for which you want to edit a text list setting. The Text Edit tab opens.
5	Select the checkbox(es) for the video and audio device(s) you no longer want to be associated with the text device.
6	Use the arrow left button to remove the selected devices from the Association list(s).
7	Click

- End -

Advanced Camera Configuration

There are several advanced camera configuration tabs which are accessed by clicking the Setup icon in the Video List tab;

- General
- Image Settings
- Function & Streams
- Archive
- Alerts
- PTZ

General

General camera settings that can be easily updated from the General tab which can be accessed by clicking the Setup icon for the required device on the Video List tab.

Note:
The MAC Address, ID Channel and Device Type fields are for information only and are not configurable.

Change the Security Group Assigned to an IP Camera

If an IP camera is assigned to a security group and you have changed the password for this camera, you will need to select the new security group the camera belongs to.

Procedure 3-21
Changing the Security Group Assigned to an IP Camera

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row that you want to assign to a new password group. The Function & Streams tab displays.
4	Select the **General** tab.
5	Select the new password group from the **Security Group** dropdown.
6	Click

Note:
If you are editing the security group for a camera, forming part of an encoder device, all cameras related to this device will be updated with the new security group. In this instance, a warning message opens informing you that multiple cameras will be updated.

- End -

Change a Camera's Storage Set

Changing the storage set a camera is assigned to is only applicable if you have configured the NVR for advanced storage. When you change the storage set, media from the camera will now be stored on media folders in the new storage set. You can also edit the storage set a camera is assigned to by editing the advanced storage settings, refer to Advanced Camera Configuration on page 142.

Procedure 3-22
Changing a Camera's Storage Set

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row that you want to assign to a new storage set. The Function & Streams page opens.
4	Select the **General** tab.
5	Select the new storage set from the **Storage Set** dropdown.
6	Click

- End -

Look-Down

Look-down should be enabled if a camera has been mounted on the ceiling pointing directs down to the floor. This is to facilitate POS analytics. Refer to the victor unified user guide for more information.

Procedure 3-23
Enable/Disable Camera Look-down

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row that you want to enable/disable look-down for.
4	Select the **General** tab.
5	Select the **Look-down** checkbox to enable look-down. Or Deselect the **Look-down** checkbox to disable look-down
6	Click

- End -

Video Streaming

You can enable or disable streaming on a camera as required.

Procedure 3-24
Enable/Disable Video Streaming

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row that you want to assign to a new storage set. The Function & Streams page opens.
4	Select the **General** tab.
5	In the **Camera Streaming** field select **Enable** to enable camera streaming, Or Select **Disable** to disable camera streaming.
6	Click

- End -

Image Settings

Camera image settings can be configured in the Image Setting tab which can be accessed by clicking the Setup icon for the required device on the Video List tab.. The settings available are dependent on the camera make/model. When the changed settings are applied, the viewer window updates to reflect the changes made.

Procedure 3-25
Configuring Camera Image Settings

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row you want to configure camera settings. The Function & Streams tab displays.
4	Select the **Image Settings** tab.
5	Adjust the Video Properties as required. The available settings and value ranges are dependent on the camera make/model and include: a **Video Standard** - Select the required video processing standard from the dropdown. b **Rotate Image** - Select the angle you want to rotate the image from the dropdown. c **Brightness** - Select the brightness value from the dropdown. d **Contrast** - Select the contrast value from the dropdown. e **Hue** - Select the hue value from the dropdown. f **Sharpness** - Select the sharpness value from the dropdown. g **White Balance** - Select the white balance control value from the dropdown. h **Back Light Compensation** - Select the back light compensation value from the dropdown. i **Image Interlaced** - Select the image interlacing setting from the dropdown.
6	Adjust the Lens/Sensor settings. The types of settings and value ranges available are camera make/model dependent and include: a **LensFocus** - Select a focus for the camera from the dropdown. b **Lens Auto Focus** - Select the checkbox to enable automatic camera focus. c **Lens Iris** - Select the iris value for the camera from the dropdown. d **Lens Auto Iris** - Select the checkbox to enable automatic iris control. e **Lens Day Night Mode** - Select the required mode from the dropdown. f **Lens WDR (Wide Dynamic Range)** - Select the checkbox to enable WDR. g **Mount Type (Vivotech Fish-eye camera only)** - Select the Mount type from the dropdown. **Note:** The mount point configured on the NVR must match the location of the Vivotech Fish-eye camera when it is installed as this will dictate the algorithm used by victor unified client for de-warping.
7	Click The viewer window updates to reflect the changes made to the image settings.

- End -

Function and Streams

The Function and Streams tab is where you configure:

- Recording Mode
- Video Analysis
- Motion Sensitivity (Motion Detection only)
- Maximum Retention Period
- Associate Audio
- Stream Configuration

Recording Mode

The recording mode setting on the camera determines when the camera records.

Table 3-4 Recording Statuses

Mode	Icon	Description
Recording Off		Camera is not recording. Live video can still be viewed.
Recording Always		The camera will record continuously. In this mode you will not receive alert notifications from the NVR.
Only Record on Alarm		Camera is not recording an alarm is detected recording commences. Using this mode you will receive alert notifications from the NVR.
Recording Always with Alarm On		Camera is recording continuously with alarm detection (bump-on-alarm). Using this mode you will receive alert notifications from the NVR.

Procedure 3-26
Setting the Camera Recording Mode

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row you want to configure camera settings. The Function & Streams tab displays.
4	Select the required **Record Mode** option button: • **Recording Off** • **Recording Always** • **Recording Normal Off, Alarms On** • **Recording Always with Alarm On**
5	Click

Note:
You can check the recording mode of any camera in the Live Video windows. The recording mode is displayed beside the camera name.

- End -

Video Analysis

Video Analysis can be enabled using the dropdown to select one of the following:

- Motion Detection
- Video Intelligence
- Edge Analytics

Motion Detection

The NVR provides server-based motion detection for all cameras. Hardware-based (camera-based) Motion Detection is not supported by the NVR. The NVR supports two motion detection features:

- **Motion Search** - a victor Client can search recorded video for motion.
- **Motion Alerts** - you can define Motion detection settings that can be used to set up motion detection rules. When a new camera is added to the NVR, a motion detection alert is automatically created with a full-view region. The name of this alert will be called “Full View”.

The Motion Detection settings allow you to define the parameters which will initiate an alarm. This will reduce the number of unwanted alarm events and is achieved using the following tools:

- Duration settings allowing you to define the time period of activity in the region of interest to activate an alarm.
- Direction settings allowing you to define the direction of motion required to activate an alarm.
- Size expressed as the minimum percentage of the region of interest with activity required before activating an alarm.

Motion Detection events will create entries in the victor site manager database. If required you can use the Reports feature in victor unified client to retrieve event information.

Enabling Motion Detection

A Stream Configuration is required that allows the NVR to generate meta-data for motion detection. You also need to select **Motion Detection** from the **Video Analysis** dropdown. The NVR will automatically determine the required stream settings (Table 10-1). If only one stream is configured and it does not satisfy the requirements for Motion Detection, the NVR will attempt to automatically open the second stream with settings best suited for Motion Detection. If the camera does not support dual streaming you will manually need to adjust the configuration of the configured stream.

Motion Detection may not be available on a camera if it’s minimum video resolution setting is higher than the maximum acceptable resolution for Motion Detection. The NVR will not allow you to configure a camera for Motion Detection if the resolution setting of the camera is higher than the settings in the table below.

Table 3-5 Camera Resolutions for Motion Detection

Camera Type	Minimum Resolution	Maximum Resolution
MJPEG	QCIF	1280 x 960
MPEG-4	QCIF	CIF

The optimal stream to perform Motion Detection is 320 x 240 resolution (or the closest resolution supported by the camera), MJPEG at 7 frames per second. Lower resolution or framerates might degrade the quality of Motion Detection. The NVR requires at least QCIF and more than 4 frames per second to perform motion detection.

Note:
Video Analytics run internally at approximately 7fps. If analytics utilizes a stream that is running at a higher frame rate that 7fps, then the analytics engine will drop frames to make sure that it is under a certain fps and CPU load.

Procedure 3-27
Enabling Motion Detection for a Camera

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera record for which you want to configure camera settings. The Function & Streams tab displays.
4	Set the camera **Record Status** to a setting that supports Motion Detection (Only Record on Alarm or Recording Always with Alarm On).
5	Select **Motion Detection** from the **Video Analysis** dropdown list. **Note:** If an error message opens, the NVR cannot detect a suitable stream from the camera to support Motion Detection. You will need to change the Codec Image Resolution, or FPS of one of your camera's streams to settings that are compatible with Motion Detection.
6	Select the required level of **Motion Sensitivity**. Values range from High (most results) to Low (least results).
7	Click

- End -

Disabling Motion Detection

When required, you can disable Motion Detection in the Video List or using the camera's Advanced Edit page. When Motion Detection is disabled you will not be able to perform some of the Motion Detection based activities, such as setting NVR Motion Detection alarms.

Procedure 3-28
Disabling Motion Detection for a Camera

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera record where you want to disable camera Video Intelligence. The Function & Streams page opens.
4	Select **None** from the **Video Analysis** dropdown.
5	Click

- End -

Video Intelligence

The NVR provides server based Video Intelligence for all cameras. Video Intelligence is a licenced add-on for the NVR. Hardware-based (camera-based) Video Intelligence is not supported by the NVR. The NVR supports two Video Intelligence features:

- **Video Intelligence Search** - or victor client can search recorded video for a specific type of event.
- **Video Intelligence Alerts** - you can define Video Intelligence settings that can be used to set up Video Intelligence rules.

There are several types of Video Intelligence rules available. These include:

- **Object Detection** - Used to detect people or objects moving into a region of interest. This search is similar to a motion search, but only detects people or objects on entry of the region of interest i.e. they will not be continuously detected if they remain within the region of interest. If the object leaves the camera view and returns, the search will detect them again. A separate event is generated for each object that enters the region, even if the objects move into the region at the same time, unlike motion detection that generates one event.
- **Object Direction** - Used to detect objects moving in a certain direction through a region of interest, for example, a car travelling the wrong way on a road.
- **Object Linger** - Used to detect objects lingering in an area of interest. An object is lingering if it is mostly stationary.
- **Object Enter** - Used to detect objects entering a camera view through a region of interest, for example, a doorway or threshold.
- **Object Exit** - Used to detect objects exiting a camera view through a region of interest, for example, a doorway or threshold.
- **Object Abandoned/Removed** - Used to find changes to the background of a scene in a region of interest, for example, use it to detect when a stationary object was placed, moved or removed.

The Video Intelligence settings allow you to define the parameters which will initiate an alarm (an alarm rule). This will reduce the number of unwanted alarm events. The parameters available are dependent on the type of Video Intelligence rules which are defined.

Video Intelligence provides useful information only if recording is enabled on the camera. Your camera should be configured with **Only Record on Alarm** or **Recording Always with Alarm On** recording modes.

Video Intelligence events will create entries in the victor site manager database. If required you can use the Reports feature in victor unified client to retrieve event information.

To carry out Video Intelligence based activities you need to enable Video Intelligence on the NVR.

Enable Video Intelligence for a Camera

To enable a camera to use Video Intelligence features, you can use the Video List tab or the Function and Stream settings tab of the camera Advanced Edit page.

You must ensure you have a Stream Specification that allows the NVR to generate meta-data for Video Intelligence. You also need to select **Video Intelligence** in the **Video Analysis** field.

The NVR will automatically determine the required settings and apply them to a stream. If the camera is configured for dual-stream, then the NVR chooses the best stream. If the NVR is unable to find a suitable video stream for Video Intelligence an error message opens.

Video intelligence may not be available for a particular camera if the camera's video resolution setting is lower than the minimum or higher than the maximum acceptable resolution for Video Intelligence. The NVR will not allow you to configure a camera for Video Intelligence if the resolution setting of the camera is outside of the settings in the table below.

Table 3-6 Camera Resolutions for Video Intelligence

Camera Type	Minimum Resolution	Maximum Resolution
MJPEG	320 x 180	1280 x 960
MPEG-4	320 x 180	CIF

The optimal stream to perform Video Intelligence is CIF (320 x 240 resolution) MJPEG at 7 frames per second. The NVR requires at least 320 x 180 resolution and more than 4 frames per second to perform Video Intelligence activities.

Note:
Video Analytics run internally at approximately 7fps. If analytics utilizes a stream that is running at a higher frame rate that 7fps, then the analytics engine will drop frames to make sure that it is under a certain fps and CPU load.

Procedure 3-29
Enabling Video Intelligence for a Camera

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera record for which you want to enable Video Intelligence. The Function & Streams tab displays. **Note:** You can also enable Video Intelligence from the Video List.
4	Set the camera **Record Status** to a setting that supports Video Intelligence (Only Record on Alarm or Recording Always with Alarm On).

5 Select **Video Intelligence** from the **Video Analysis** dropdown.

Note:
If an error message opens, the NVR cannot detect a suitable stream from the camera to support Video Intelligence. You will need to change the Codec, Image Resolution, or FPS of one of your camera's streams to settings that are compatible with Video Intelligence.

6 Click

- End -

Disable Video Intelligence for a Camera

If you do not want Video Intelligence activities carried out on a camera, you can disable Video Intelligence in the NVR camera settings. When Video Intelligence is disabled you will not be able to perform any Video Intelligence searches or set Video Intelligence alarms on the camera. However, the Video Intelligence alarms defined on a camera are remembered and will become active if Video Intelligence is enabled again for that camera.

Procedure 3-30
Disabling Video Intelligence for a Camera

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera record where you want to disable camera Video Intelligence. The Function & Streams tab displays.
4	Select **None** from the **Video Analysis** dropdown.
5	Click

- End -

Edge Analytics

Edge Analytics are camera based analytic operations which forward alarms and metadata to the NVR. This minimizes the impact on the NVRs CPU usage in comparison to Motion Detection and Video Intelligence which are both server based operations.

Edge analytics are supported on the following American Dynamics cameras:

- Illustra 600
- Illustra 610
- Illustra 610LT
- Illustra 210

The NVR supports camera-based analytics for supported cameras. The NVR supports two edge analytics features:

- **Edge-based Search** - a client can search recorded video for a specific type of event.
- **Edge-based Alarms** - you can define parameters that can be used to set up edge based analytic rules.

The following edge based analytic types are available on the NVR:

- **Blur Detection** - Blur events occur when the camera becomes out of focus in the region of interest. Edge based blur detection events are only supported in victor unified client.
- **Motion Detection** - Motion detection events occur when motion is detected in the camera's view. Edge based motion detection events are supported in both victor unified client and VideoEdge client.
- **Motion Detection metadata** - When enabled allows you to search recorded video for edge based motion detection events. Edge based motion detection searches are supported in both victor unified client and VideoEdge client.
- **Face Detection** - Face detection events occur when a face is present in the camera's view. Face detection is only supported on victor unified client.
- **Face Detection metadata** - When enabled allows you to search recorded video for edge based face detection events. Face detection searches are only supported on victor unified client.

Note:
Only one edge based metadata type can be enabled for search at any one time, for example if you have Motion Detection metadata enabled, you cannot enable Face Detection metadata.

Before the NVR can receive edge based analytic events or metadata, this functionality must be configured and enabled on the camera or encoder. When edge analytics have been enabled on the device, you must also enable edge analytics functionality on the NVR. You must set the Video Analysis to be Edge Based in the NVR Camera Configuration.

Edge based analytics provides useful information only if recording is enabled on the camera. All three recording status' will record either Motion Detection metadata or Face Detection metadata provided it is enabled. This allows Edge based searching of recorded video for either of these metadata types.

For Edge based alarms your camera recording status should be set to either Only Record on Alarm or Recording Always with Alarm On.

Edge Analytic events will create entries in the victor site manager database. If required you can use the Reports feature in victor unified client to retrieve event information.

Enabling Edge Based Analytics

To enable edge based analytics you need to configure settings on both the camera or encoder and the NVR. Refer to the User's Guide of the edge device for information on how to enable edge based analytics on the device. Once configured on the device you can enable the NVR to use edge based analytic features on the configured camera using the Device List page or the Function and Stream settings tab in the camera setup pages.

You need to select **Edge Based** in the **Video Analysis** field.

When the NVR is configured to support Edge based analytics, certain Edge analytic functionality may be dependant on stream configuration. Refer to camera documentation for more detail.

Procedure 3-31
Enabling Edge Based Analytics for a Camera

Step	Action
1	Ensure edge based analytics have been configured on the camera via the camera's own interface. For further information refer to the camera's User Manual.
2	Select **Devices** from the main menu.
3	Select **List**.

4 Click in the camera record for which you want to configure camera settings.

The Function & Streams tab is displayed.

Note:
You can also enable edge based analytics from the Device List and Batch edit tabs.

5 Set the camera **Record Status** to a setting that supports edge based analytics (Only Record on Alarm or Recording Always with Alarm On).

6 Select **Edge Based** from the **Video Analysis** dropdown.

Note:
Refer to the camera handler release notes to ensure proper camera configuration is used for edge analytics.

7 Click

- End -

Disabling Edge Based Analytics for a Camera

When required, you can disable edge based analytics in the Device List or using the camera's Setup pages. When edge analytics is disabled you will not be able to perform some of the edge based analytic activities, such as enabling edge based Motion Detection alarms.

Procedure 3-32
Disabling Motion Detection for a Camera

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera record where you want to disable camera Video Intelligence. The Function & Streams tab displays.
4	Select **None** from the **Video Analysis** dropdown.
5	Click

- End -

Motion Sensitivity

Motion Sensitivity can be configured using the dropdown to select one of the following:

- High (most results)
- Medium high
- Medium
- Medium low
- Low (least results)

For more information on configuring motion detection refer to the Alarms chapter.

Set the Maximum Retention Period

The maximum retention period is the maximum duration over which recorded video for a camera will be saved for, without being deleted. Recorded video older than this will be deleted periodically to free storage space in the storage set the camera is recording to.

Procedure 3-33
Setting the Maximum Retention Period

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row you want to set the recording retention period. The Function & Streams tab displays.
4	Enter the **Maximum Retention Period** in the **Days** and **Hours** fields.
5	Click

- End -

Configuring Audio Association

The audio device you want to associate with a camera is selected using the Associate Audio dropdown.

Note:
Audio playback is not available via the NVR Administration Interface. The audio settings are used to determine how audio streams are made available to connected clients.

Audio and video are derived from the camera as two separate packet streams. Depending on the camera manufacturer and video/audio codec combination, these packet streams may not be exactly in synchronization for live streaming. The NVR's live streaming method is to pull video and audio from the camera and push it to the client straight away. This helps achieve low video latency but sometimes at the expense of live audio/video synchronization. Recorded playback of the same audio and video may give better audio/video synchronization results.

Procedure 3-34
Configuring Audio Association

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row you want to edit audio settings. The Function & Streams tab displays.
4	Select the Audio device you want to associated with the camera from the **Associate Audio** dropdown.
5	Click

- End -

Stream Configuration

Stream Configuration defines which stream is used for live video, alarms and recording. The NVR will automatically determine the best stream to use for Motion Detection or Video Intelligence. You can also adjust the codec, FPS and resolution of each stream. Depending on what is assigned to a stream, you need to have the appropriate codec, FPS and resolution assigned. For example, the stream you are using for Video Intelligence analytics must be MJPEG or MPEG-4, with a recommended resolution of CIF and 7 FPS.

Note:
If the camera supports only a single stream, the Stream 2 settings for Live Stream, Alarm Stream, Record Stream and Analytics Stream are unavailable.

Procedure 3-35
Configuring Stream Settings

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row for which you want to edit stream settings. The Function & Streams page opens.
4	Select the stream you want the camera to use for: a Live video b Alarms c Recording
5	Select the **Codec** for each stream.
6	Select the **FPS** for each stream.
7	Select the **Resolution** for each stream.
8	If you are using a stream for analytics, select the **Quality**.
9	Click

- End -

Archive

The Archive tab is where you configure:

- Archive Mode
- Archiving Quality
- Maximum Archiving Retention Period

Archive settings can be configured for each individual camera. This will determine video which is queued for archiving, not when it will be written to the archive. You can also apply framerate decimation using the Archive Quality dropdown and define a maximum retention period for archived video.

Procedure 3-36
Configure Archive Settings

Step	Action
1	Select **Devices** from the menu.
2	Select **List**.
3	Click in the camera row for which you want to edit archive mode.
4	Select the **Archive** tab.
5	Select the **Archiving disabled** option button to disable archiving for the camera. Or Select the **Archive all video** option button to archive all video for the camera. Or Select the **Archive only alarm video** option button to archive video triggered with an alarm.
6	Select the **Archiving Quality** from the dropdown.
7	Select the **Enabled** option button to enable a Maximum Archiving Retention Period and enter the required value in the **Maximum Retention Period (days)** field. Or Select the **Disabled** option button to disable a Maximum Archiving Retention Period.
8	Click

- End -

Alerts

The Alerts tab is where you configure:

- Alert Pre-Buffer (seconds)
- Alert Post-Buffer (seconds)

Buffer times range from 30 seconds to 300 seconds, defined in 10 second intervals.

- Enable / Disable Dry Contacts

Procedure 3-37
Configuring Alert Recording Buffers

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the camera row for which you want to set alert recording buffers. The Function & Streams tab displays.
4	Select **Alerts** tab.

5	Select the **Alert Pre-Buffer** from the dropdown (range 30 - 300 seconds).
6	Select the **Alert Post-Buffer** from the dropdown (range 30 - 300 seconds).
7	Click

- End -

Dry Contacts

You can associate dry contact sensors with a particular camera in the Alerts tab. These are sensors typically used in doorways, and are activated, for example, when a door is opened. The NVRs can command cameras to pan-tilt-zoom to predetermined locations and record video for a specified period.

Procedure 3-38
Enabling a Dry Contact Sensor

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Select for the camera for which you want to enable dry contact settings. The Function & Streams tab displays.
4	Select **Alerts** tab.
5	Select the Dry Contact Input **Enabled** checkbox(es) in the Dry Contacts section.
6	Click

Note:
If you are editing the dry contact settings for a camera forming part of an encoder device, all cameras related to this device will be updated with the changes made to the dry contacts. In this instance, a warning message opens informing you that multiple cameras will be updated.

- End -

PTZ

If a camera has PTZ capabilities you will be able enable/disable PTZ functionality and configure the Return to Home settings for the camera in the PTZ tab.

Enable/Disable PTZ Functionality

You can enable or disable PTZ functionality for a camera provided the camera has PTZ capabilities.

Procedure 3-39
Enable or Disable PTZ

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.

3	Click in the PTZ camera row. The Function & Streams tab displays.
4	Select **PTZ** tab.
5	Select the **Enable PTZ** checkbox to enable PTZ. Or Deselect the **Enable PTZ** checkbox to disable PTZ.
6	Click

- End -

Return to Home

When the PTZ Return to Home feature is enabled, this will return the PTZ to its 'home' position after a defined period of inactivity. The first preset in a list of configured presets is considered to be the home position.

When the PTZ is moved, the idle timer for the camera is reset. For example, if a camera moves to a preset position, moves using the pan or tilt controls or moves as part of a tour, the idle timer will reset to zero.

Note:
If the camera is moved using the camera's own web browser controls, the timer will not reset.

The Return to Home period is defined using the dropdown. The periods available are in seconds between 60 and 600, in 60 second intervals.

Procedure 3-40
Enabling PTZ 'Return to Home'

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the PTZ camera row for which you want to enable the 'Return to Home' feature. The Function & Streams tab displays.
4	Select **PTZ** tab.
5	Select the **Enable Return to Home** checkbox. The Return to Home After dropdown displays.
6	Select the desired period of inactivity before the camera 'returns to home' from the **Return to Home After** dropdown (range 60 - 600 seconds).
7	Click

- End -

Device Replacement

The NVR's device replacement functionality allows you to replace camerasand encoders by changing the IP address on the existing and configured device slot. This allows you to quickly replace faulty devices or to upgrade to a device

with greater capabilities.

The NVR will apply as many of the existing parameters to the new device based on shared compatibility. Where the replacement device has features which are not compatible, default settings will apply. When the new device has been added a dialog window will summarize the settings which have been successfully applied and those that cannot be applied or where a 'best effort' choice has been implemented.

Note:
When carrying out device replacement for a camera which utilizes analytics, the Region of Interest and Alarms setting will need to be manually re-applied. This ensures that analytic operations remain accurate with the new device's Field of View.

When carrying out device replacements, it's important to also consider the associations that are currently configured on your NVR. Associations configured on the NVR will be maintained by default when device replacement is carried out bar when audio from the replaced device was associated with other devices on the NVR and the new device does not have an audio input.

Replacing an Audio/Video Device

Video and audio devices can be replaced by re-assigning the IP address of the configured slot. Changes to the IP address in the Video List will also be applied to the Audio List and vice versa.

Procedure 3-41
Replacing a Device from the Video List Tab

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Click in the record of the device you want to replace.
4	Enter the IP address of the new device.
5	Click . . A dialog box opens stating 'Warning: Some camera settings may not be retained. Remember to verify all settings pre and post device replacement.'
6	Click **OK**. The new device will now occupy this device slot.

- End -

Replacing a Text Device

Text device replacement can be achieved by physically replacing the faulty device. Provided the new device shares the same communication configurations as the replaced device, no configuration of the NVR will be required. IP Text devices can also be replaced by re-assigning the port number assigned to the device slot in the Text List tab.

Note:
Should a text device become faulty due to a failure with a RS-232 to USB converter; it may not be possible to carry out a successful device replacement. Some RS232 to USB converters have uniquely assigned IDs, this ID can not be re-configured on the NVR and in this instance you will be required to delete the Text Device and add re-add. In this instance the association with recorded text data will be lost.

Procedure 3-42
Replacing an IP Text Device

Step	Action
1	Select **Devices** from the main menu.
2	Select **List**.
3	Select the **Text List** tab.
4	Click in the record of the device you want to replace.
5	Enter the **Port** number being used by the new device.
6	Click **Apply**. The new device will now occupy this device slot.

- End -

Replacing Multi-Channel Encoders

Multi-channel encoders are perceived by the NVR as multiple devices, for example an eight channel encoder will occupy eight slots in the device list.The device replacement feature allows you to perform individual channel replacement or an encoder for encoder swap.

Replacing an encoder channel with and IP device

Analog devices connected via a multi-channel encoder can be replaced on a one to one basis with IP device. This provides flexibility to upgrade or replace devices gradually without having to request a new license.

The process of replacing an encoder channel with an IP device is the same as standard device replacement.

Replacing a channel on one encoder with a channel from another

You can replace the channels on one encoder with the channels from another. For example if you change the IP address of the device slot occupied to channel 3 of encoder 1 to the IP address of encoder 2, channel 3 of encoder 2 will now occupy the slot in the device list.

Replacing one encoder with another

You can replace a complete encoder with another by selecting all of the encoders inputs from the device list and using the batch edit tool. The channels from the new encoder will occupy the corresponding device slots. For example, Channel 1 will occupy the slot assigned to channel 1 of the original encoder and so on.

Note:
If the replacement device has less available slots than the device being replaced, the operation will not succeed.

If you want to replace a larger encoder with a smaller encoder, for example, replacing an 8 channel with a 4 channel, only the required slots should be selected before advancing to batch edit.

Note:
When slots are deleted, recorded video associated with that slot can no longer be retrieved.

Audio Support/Associations

Provided the replacement encoder has adequate audio support, audio association and settings should be maintained after a replacement is carried out.

Temporary Device Replacement

Should a device become faulty and need to be disconnected for repair, temporary device can be achieved by following to following process:

1 Carry out device replacement as previously described.

Note:
The NVR will apply as many of the existing parameters to the new device based on shared compatibility. Settings which cannot be applied will be lost.

2 Once repaired reconnect the faulty device.

Note:
Ensure the device has the same IP address as previously configured prior to the fault developing.

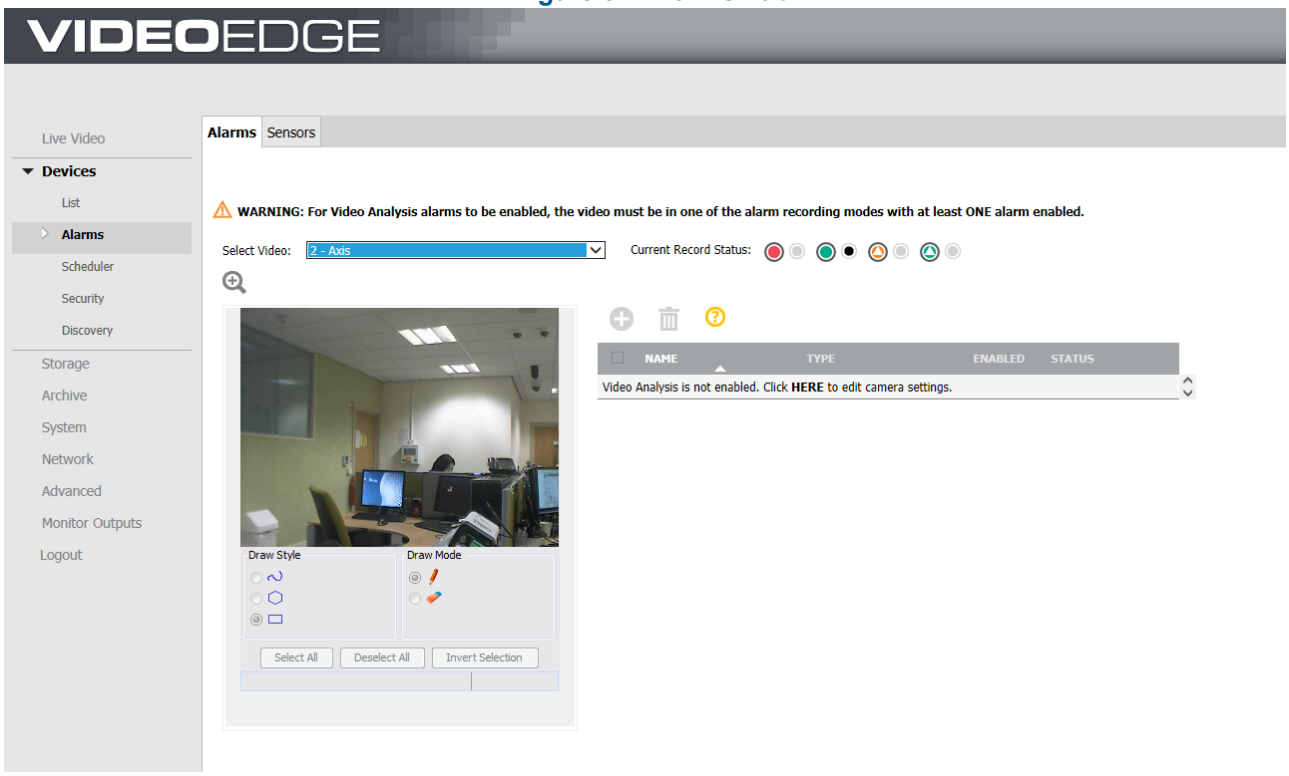
3 Apply the NVRs template file to restore all device settings. For further information on applying a template file refer to Templates.

Alarms

The Alarms menu item allows you to configure the following:

- Analytic alarms
- Sensors

Figure 3-2 Alarms Tab



Motion Detection

Motion Detection Alarms

After enabling Motion Detection on a camera, you can set alarm rules that trigger an event.

Each camera can have up to 10 independent motion alarm rules defined. Each rule has an associated region of interest. In each region of interest you can define the areas in the cameras view that you want to monitor. You can name each alarm rule. It is best to use descriptive names like ‘Back Door’ or ‘Conference Room’, as these names make it easier to identify the alarm when using a client rather than an abstract name.

The areas that you want to monitor in a cameras view are configured in the drawing window, a live display of the camera view. To determine the areas of the camera view that you want monitored you need to draw on the window. Use the drawing tools to draw on the Camera Alarm Configuration window.

The status of each Video Intelligence alarm highlighted in the **Status** field. There are three alarm states:

- **Red** - Alarm is disabled. The alarm can be disabled via the **Enabled** option button.
- **Yellow** - Alarm is enabled, however, the recording mode set for the camera does NOT support alarms so the alarms will not be generated. Supported modes are **Only Record on Alarm** or **Recording Always with Alarm On**.

- **Green** - Alarm is enabled and a supported recording mode is selected. Alarms will be generated.

Table 3-7 Drawing Tools

Tool Type	Options	Description
Zoom	Zoom 2X	Doubles the size of the drawing window,
Draw Style	Free Draw	Draw using free draw by clicking on the window and dragging to draw the shape. The detection area is highlighted yellow.
	Polygon	Draw a polygon by clicking once in the window, and use the lines to form the region of interest. Click again to confirm the line. Double click when the shape is complete to finalize the detection area. The detection area is highlighted in yellow.
	Rectangle	Draw a rectangle by clicking once in the window and dragging the cursor over the camera view to highlight the area of interest. The detection area is highlighted in yellow when the mouse button is released.
Brush Size	4 x 4	You can choose the brush size when using free draw to draw a region of interest for Video Intelligence alarms. Select 4x4 to draw using a thin line. **Note** This option is not available when configuring Motion Detection alarms.
	8 x 8	You can choose the brush size when using free draw to draw a region of interest for Video Intelligence alarms. Select 8x8 to draw using a thick line. **Note** This option is not available when configuring Motion Detection alarms.
Draw Mode	Draw	Select Draw when you want the draw style to draw a detection area.
	Erase	Select Erase when you want the draw style to erase sections of a detection area.

Motion Detection Best Practices

To ensure you get the highest quality results when using Motion Detection on the NVR it is recommended that you adhere to the following:

- An object exhibiting motion needs to be at least 8x8 pixels in size to be detected.
- The color of the object (in grayscale) should be approximately 10-15% different than the background.
- The frame rate of the video should be high enough to capture the object in one or more captured frames.
- Motion Detection events create entries in the victor site manager database. It is important to ensure that the motion detection parameters are accurate to avoid generating false entries.
- Exclude the Time Stamp region from motion detection, because the time stamp changes constantly and could register as motion.
- Try not to point cameras into sunlight, because high brightness will prevent detection of movement of bright objects such as a person with a white shirt.
- Avoid areas with persistent motion, such as trees, blinking lights, or spinning signs, by using an appropriate region of interest.
- Do not use motion detection on moving cameras, such as PTZ cameras, cameras that vibrate due to wind or other effects, or cameras mounted on moveable fixtures.

Creating a Motion Detection Camera Alarm

When creating Motion Detection camera alarm you must define an alarm rule. When activity in a camera's view or region of interest satisfies the criteria defined in the rule, an alarm is triggered.

To create a Motion Detection camera alarm you must have Motion Detection enabled on the camera. If you try to add a camera alarm without Motion Detection enabled you will be prompted to edit the camera settings.

Procedure 3-43
Creating a Motion Detection Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**. The **Alarms** tab displays.
3	Select the camera for which you want to create an alarm, from the **Select Video** dropdown.
4	Click **Add**. **Note:** If the Add button is not available, you do not have Motion Detection or Video Intelligence enabled on the camera. Enable Motion Detection to continue.
5	If required you can update the **Current Record Status**. For Motion Detection to be enabled you must select either Recording Off, Recording Always, Only Record on Alarm, or Recording Always With Alarm On.
6	Enter an alarm **Name** (max 50 characters). **Note:** Use a descriptive name that will make the alarm easy to identify.

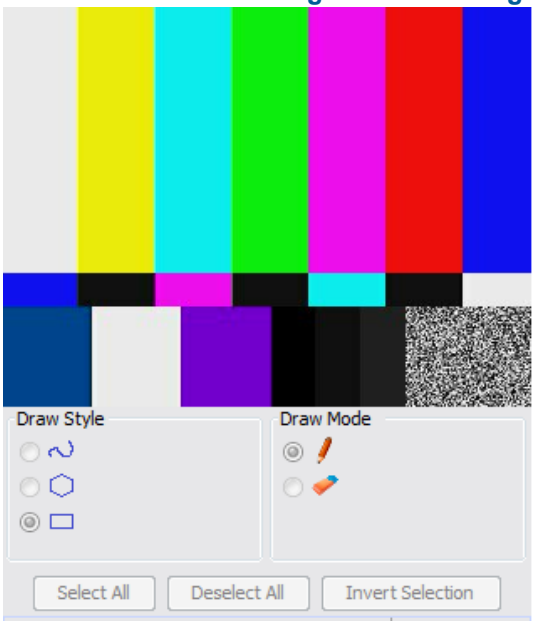
7 Ensure **Motion** is the selected **Type**.

Note:
If the **Motion** is not available in the dropdown, you do not have Motion Detection enabled on the camera, instead Video Intelligence is enabled. Enable Motion Detection to continue.

8 (Optional) Use the drawing tools to draw the Motion Detection region of interest in the Camera Alarm Configuration drawing window.

Note:
If you do not draw a region of interest, the entire camera view will be used as the region of interest.

Figure 3-3 Camera Alarm Configuration Drawing Window



9 Select the **Yes** option button for the **Enabled** field, to enable the alarm.

10 Use the **Size (%)** slider to determine the percentage of the region of interest with activity present for the alarm to be triggered. The higher the percentage of the region of interest selected, the lower the number of motion detection results triggered for the alarm. A setting of 0% will trigger an alarm for any size motion.

11 Enter the **Duration (secs)** that there is sustained activity in the region of interest before the alarm is triggered. You can enter values between 0 (default) and 600. A value of 0 seconds will trigger an alarm for motion of any duration.

12 Select the **Direction** from the dropdown that the center of the activity area of motion must move, in order to trigger the alarm. If you select **ANY** it will trigger an alarm for movement in any direction.

13 Select **Save**.

- End -

Editing a Motion Detection Camera Alarm

You can make changes to camera alarm settings if required, for example, you can change the region of interest, the percentage of the region of interest that requires activity present, the duration of activity or the direction of movement.

Procedure 3-44
Editing a Motion Detection Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**. The Alarms tab displays.
3	Select **Edit** for the camera alarm you want to edit.
4	Use the drawing tools to edit the Motion Detection region of interest in the Camera Alarm Configuration drawing window.
5	Use the **Size (%)** slider to edit he percentage of the region of interest with activity present for the alarm to be triggered. The higher the percentage of the region of interest selected, the lower the number of motion detection results triggered for the alarm. A setting of 0% will trigger an alarm for any size motion.
6	Edit the **Duration (secs)** that there is sustained activity in the region of interest before the alarm is triggered. You can enter values between 0 (default) and 600. A value of 0 seconds will trigger an alarm for motion of any duration.
7	Edit the **Direction** by selecting a different direction from the dropdown. The direction is the center of the activity area of motion must move, in order to trigger the alarm. If you select **ANY** it will trigger an alarm for movement in any direction.
8	Select **Save**.

- End -

Disabling a Motion Detection Camera Alarm

When a Motion Detection camera alarm is not needed at present, but will be needed in the future, the alarm can be disabled. The alarm configuration remains the same on the camera for when it is enabled again.

Procedure 3-45
Disabling a Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select Alarms. The Alarms tab displays.
3	Select the alarm record you want to disable.
4	Click **Edit**.
5	Select the No option button in the **Enabled** field.
6	Click **Save**.

- End -

Deleting a Motion Detection Camera Alarm

When a Motion Detection camera alarm is no longer required, it can be deleted.

Procedure 3-46
Deleting a Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**. The Alarms tab displays.
3	Select the alarm record you want to delete.
4	Click **Delete**. The alarm record is removed from the alarm table.

- End -

Video Intelligence

Video Intelligence Camera Alarms

After enabling Video Intelligence on a camera, you can define alarm rules that trigger an event.

Each camera can have any number of independent Video Intelligence rules. In each rule you can define the areas in the cameras view that you want to monitor. You can name each alarm rule. It is best to use descriptive names like 'Back Door' or 'Conference Room', as these names make it easier to identify the alarm rule in the alerts log better than an abstract name. You can choose the Video Intelligence type for the rule.

The areas that you want to monitor in a cameras view are configured in the Camera Alarm Configuration drawing window, a live display of the camera view. To determine the areas of the camera view that you want monitored you need to draw on the window. Use the drawing tools to draw on the Camera Alarm Configuration window.

The status of each Video Intelligence alarm highlighted in the **Status** field. There are three alarm states:

- **Red** - Alarm is disabled. The alarm can be disabled via the **Enabled** option button.
- **Yellow** - Alarm is enabled, however, the recording mode set for the camera does NOT support alarms so the alarms will not be generated. Supported modes are **Only Record on Alarm** or **Recording Always with Alarm On**.
- **Green** - Alarm is enabled and a supported recording mode is selected. Alarms will be generated.

Video Intelligence Best Practices

To ensure you get the highest quality results when using Video Intelligence on the NVR it is recommended that you adhere to the following:

- An object exhibiting movement or a change in the scene background must be large enough to be detected, i.e. it must be around 1/25 of the image size.
- The color of the object (in grayscale) should be approximately 10-15% different than the background.
- The frame rate of the video should be high enough to capture the object in one or more captured frames.
- Video Intelligence events create entries in the victor site manager database. It is important to ensure that the Video Intelligence parameters are accurate to avoid generating false log entries.
- Exclude the Time Stamp region from the region of interest, because the time stamp changes constantly and could register as movement.

- Try not to point cameras into sunlight, because high brightness will prevent detection of movement of bright objects such as a person with a white shirt.
- Avoid areas with persistent motion, such as trees, blinking lights, or spinning signs, by using an appropriate region of interest.
- Do not use Video Intelligence on moving cameras, such as PTZ cameras, cameras that vibrate due to wind or other effects, or cameras mounted on moveable fixtures.
- Choose your Video Intelligence alarms selectively. You do not want to create alarms that will trigger a high number of alerts, making the important alerts more difficult to identify.
- Situate cameras to provide the best possible views of the areas of interest, objects and people. It is best to ensure camera views separate objects from people, ensure objects and people take up a larger portion of the camera view, and keep the entire region of interest within the camera's view.
- Use the scheduler to ensure alarm recording statuses are activated at night or during non working hours. This provides additional coverage during times when staff are not normally available.
- Use staff to help identify regions of interest to monitor based on their observations, for example, of missing merchandise or missing fixtures. Video Intelligence alarms can therefore be configured to monitor areas of potential activity.
- Use searches frequently and watch activity leading up to an alarm being triggered. This may give an indication of suspicious activity and other areas to monitor.
- Tune your alarms regularly to ensure the alarms reflect changes to the environment, for example, objects being rearranged or replaced. Monitoring these changes and re-tuning your alarms will ensure maximum effectiveness of the Video Intelligence alarms and searches.
- Use the new information that Video Intelligence provides to learn and adapt. Use it to implement changes that will improve surveillance and reduce losses, for example, eliminate blind spots, make staff aware of suspicious behavior, or re-design the environment and alarms.

Creating a Video Intelligence Camera Alarm

To create a Video Intelligence camera alarm you must have Video Intelligence enabled on the camera.

Note:
If you try to create a Video Intelligence alarm for a camera without Motion Detection or Video Intelligence enabled you will be prompted to edit the camera settings.

Procedure 3-47
Creating a Video Intelligence Camera Alarm

Step	Action
1	Select **Devices** in the main menu.
2	Select **Alarms**. The Alarms tab is displayed.
3	Select the camera for which you want to create a Video Intelligence alarm from the **Select Video** dropdown.
4	Click **Add**. **Note:** If the **Add** button is not available, you do not have Motion Detection or Video Intelligence enabled on the camera.

5 If required you can update the **Current Record Status**. For Video Intelligence alarms to be enabled you must select either **Only Record on Alarm** or **Recording Always with Alarm On**.

6 Enter an alarm **Name** (max 50 characters).

Note:
Use a descriptive name that will make the alarm easy to identify.

7 Select the Video Intelligence **Type** from the dropdown:

a **Object Detection** - Used to detect people or objects moving into a region of interest. This alarm is similar to a motion alarm, but only detects people or objects the first time they enter the region of interest. A separate event is generated for each object that enters the region, even if the objects move into the region at the same time, unlike motion detection that generates one event.

b **Abandoned / Removed** - Used to find changes to the background of a scene in a region of interest, for example, use it to detect when a stationary object was placed, moved or removed. Draw the region of interest that contains all of the area you want to search for changes.

c **Direction** - Used to detect objects moving in a certain direction through a region of interest, for example, a car traveling the wrong way on a road. It is best to use a thin region of interest to detect the direction of an object.

d **Linger** - Used to detect objects lingering in a region of interest. An object is lingering if it remains in the region of interest. The minimum amount of time an object must linger before being included in the results can be defined and you can draw a region in the area where you want to detect objects lingering. Use a higher Overlap setting to avoid detecting objects lingering nearby.

e **Dwell**: Used to detect objects dwelling in a region of interest. An object is dwelling if it is mostly stationary. The minimum amount of time an object must dwell before being included in the results can be defined. Draw a region in the area where you want to detect objects dwelling. Use a higher Overlap setting to avoid detecting objects dwelling nearby.

f **Exit** - Used to detect objects exiting a camera view through a region of interest, for example, a doorway or threshold. It is best to draw the region of interest around the doorway or threshold to include areas in which the door can move or objects can be seen, for example, glass. This will exclude objects that can be seen in the region of interest but does not pass through it.

g **Enter** - Used to detect objects entering a camera view through a region of interest, for example, a doorway or threshold. It is best to draw the region of interest around the doorway or threshold to include areas in which the door can move or objects can be seen, for example, glass. This will exclude objects that can be seen in the region of interest but does not pass through it.

Note:
If these types are not available in the dropdown, you do not have Video Intelligence enabled on the camera, instead Motion Detection is enabled. Enable Video Intelligence to continue.

8 (Optional) Use the drawing tools to draw the Video Intelligence region of interest in the Camera Alarm Configuration drawing window.

Note:
If you do not draw a region of interest, the entire camera view will be used as the region of interest.

9 Enable the alarm by selecting the **Yes** option button for the **Enabled** field.

10 Complete the alarm configuration fields. Depending on the Video Intelligence type selected there will be different alarm parameters to configure:

Object Detection

a Overlap (%) - The amount of a detected object that must be in the region of interest before an alarm is triggered. Use a higher setting to detect objects that are mostly inside the region, and use a lower value to find objects that just brush the edge of the region.

Abandoned / Removed

a Overlap (%) - The amount of background change that must be in the region of interest before an alarm is triggered. Use a higher setting to avoid finding nearby changes or changes that are not completely in the region of interest.

b Wipeout Amount Changed (%) - The percentage of the region of interest that must change before an alarm is triggered. Adjust to look for either a larger or smaller change in the region.

c Wipeout Within (secs) - Time frame within which the change must occur in order to trigger the alarm. A setting of 0 seconds represents instantaneous change.

Direction

a Overlap (%) - The amount of a detected object that must be in the region of interest while moving in the specified direction for an alarm to be triggered.

b Direction - This is the general direction the object must move in to trigger an alarm. You can choose North, South, East or West.

c Traversal Time- This is the maximum amount of time which an object can take to traverse most of the region before the alarm is triggered. This is to exclude objects that move too slow.

Linger

a Overlap (%) - The amount of detected object that must be in the region of interest while lingering for an alarm to be triggered. Use a higher setting to avoid detecting objects lingering nearby.

b Linger Time- The minimum amount of time an object lingers before the alarm is triggered.

Exit

a Overlap (%) - The amount of detected object that must be in the region of interest when the object leaves the scene for an alarm to be triggered. The object must appear in the scene while being outside the region of interest by the same amount. For best results select a higher overlap setting.

Enter

a Overlap (%) - The amount of detected object that must be in the region of interest when it first appears in the camera view. The object must leave the region of interest by the same amount before an alarm is triggered. For best results select a higher overlap setting.

11 Click **Save**.

- End -

Editing a Video Intelligence Camera Alarm

You can make changes to Video Intelligence camera alarm rules if required, for example, you can change the region of interest and update the parameters associated with that rule's Video Intelligence alarm type.

Procedure 3-48
Editing a Motion Detection Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**.

The Alarms tab is displayed.

3 Select **Edit** for the camera alarm you want to edit.

4 Use the drawing tools to edit the selected alarm's region of interest in the drawing window.

5 Edit the alarm's parameters. These will be different for each type of Video Intelligence alarm.

Note:
You cannot update the Name of the alarm. If you must change the alarm name, you must create a new alarm with the new name, assign it the same parameters and delete the old alarm.

6 Select **Save**.

- End -

Disabling Video Intelligence Camera Alarm

When a Video Intelligence camera alarm is not needed at present, but will be needed in the future, the alarm can be disabled. The alarm configuration remains the same for when it is enabled again. You can also edit the alarm configuration parameters while the alarm is disabled, once enabled the changes will take effect.

Procedure 3-49
Disabling a Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**.
	The Alarms tab is displayed
3	Select the alarm record you want to disable.
4	Click **Edit**.
5	Select the **No** option button in the **Enabled** field.
6	Click **Save**.

- End -

Deleting a Video Intelligence Camera Alarm

When a camera alarm is no longer required, it can be deleted.

Procedure 3-50
Deleting a Video Intelligence Camera Alarm

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**.
	The Alarms tab is displayed
3	Select the alarm record you want to delete.
4	Click **Delete**.

The alarm record is removed from the alarm table.

- End -

Edge Analytics

Edge Based Analytic Alarms

The configuration of analytic camera alarms must take place using the camera's interface. Refer to the camera's User's Guide for information. Once the edge device has configured alarms, the NVR can be configured to monitor for these alarms to fire. The fired alarms can trigger recording, can be sent via email, and will be recorded in the victor activity log. You can enable or disable edge based camera alarms using the NVR Administrator Interface.

There are three types of edge based analytic events supported by the NVR; motion detection, face detection and blur detection.

When you have configured the alarm parameters for the camera, the alarms are available to enable or disable from the NVR Administrator interface.

The status of each Edge Based alarm is highlighted in the **Status** field. There are three alarm states:

- **Red** - Alarm is disabled. The alarm can be disabled via the **Enabled** option button.
- **Yellow** - Alarm is enabled, however, the recording mode set for the camera does NOT support alarms so the alarms will not be generated. Supported modes are **Only Record on Alarm** or **Recording Always with Alarm On**.
- **Green** - Alarm is enabled and a supported recording mode is selected. Alarms will be generated.

Edge Analytics Best Practices

To ensure you get the highest quality results when using Edge Analytics on the NVR it is recommended that you adhere to the following:

- Edge based events create entries in the victor site manager database. It is important to ensure that the edge analytic parameters are accurate to avoid generating false entries.
- Edge based metadata is recorded in the NVR occupying storage space. It is important to ensure that the edge analytic parameters are configured accurately to prevent occupying storage space unnecessarily.
- Edge based events and metadata are created by the camera's analytics. Refer to the camera's Installation and User manual for configuring analytics to ensure proper operation.

Edge Based Analytic Metadata

After enabling edge based analytics for a camera, edge based analytic alarms can be triggered. You must enable Face Detection or Motion Detection Metadata in the alarms table to allow camera-based search based on this metadata in victor unified client.

Note:
Face and Motion Detection metadata will be recorded if the camera recording status is set to one of the three recording modes.

Enabling/Disabling an Edge Based Camera Alarm

You can enable a camera alarm from the Alarms page. Before enabling the alarm you must ensure all alarm parameters are configured on the camera using the camera's interface. When a edge based camera alarm is not

needed at present, but will be needed in the future, the alarm can be disabled. The alarm configuration remains the same on the camera for when it is enabled again.

Procedure 3-51
Enabling/Disabling Edge Based Camera Alarms and Metadata

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**.
	The Alarms tab is displayed.
3	Select the alarm/metadata record you want to enable/disable.
4	Click **Edit**.
5	To enable a camera alarm select the **Enabled** option button.
	Or
	To disable a camera alarm select the **Disabled** option button.
6	Click **Save**.

- End -

Sensors

Dry Contact Sensors can be added to the NVR as stand alone devices. Sensors can be configured to drive an action such as camera recording or driving a PTZ to preset.

Note:
Before adding a sensor you must enable dry contact sensors.

Procedure 3-52
Adding a Sensor

Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**.
	The Alarms tab is displayed.
3	Select the **Sensors** tab.
4	Click .
5	Enter the Sensor **Name**.
6	Select the **Yes** option button to enable the sensor.
	Or
	Select the **No** option button to disable the sensor.
7	Select the input from the **Input** dropdown.
8	Select the state from the **State** dropdown.

9	Click .
	The Interval (Sec) field displays.
10	Enter the interval value in the **Interval(Sec)** field.
11	Repeat steps 7-10 to add additional inputs. To remove an input select the appropriate checkbox and click **Delete**.
12	Select an action from the **Action** dropdown. If PTZ to Preset is selected the Value dropdown displays.
13	Select the device from the **Device** dropdown.
14	(PTZ to Preset only) Select the preset number from the **Value** dropdown.
15	Repeat steps 12-14 to add additional actions. To remove an action select the appropriate checkbox and click **Delete**.
16	Click .

- End -

Procedure 3-53
Deleting a Sensor

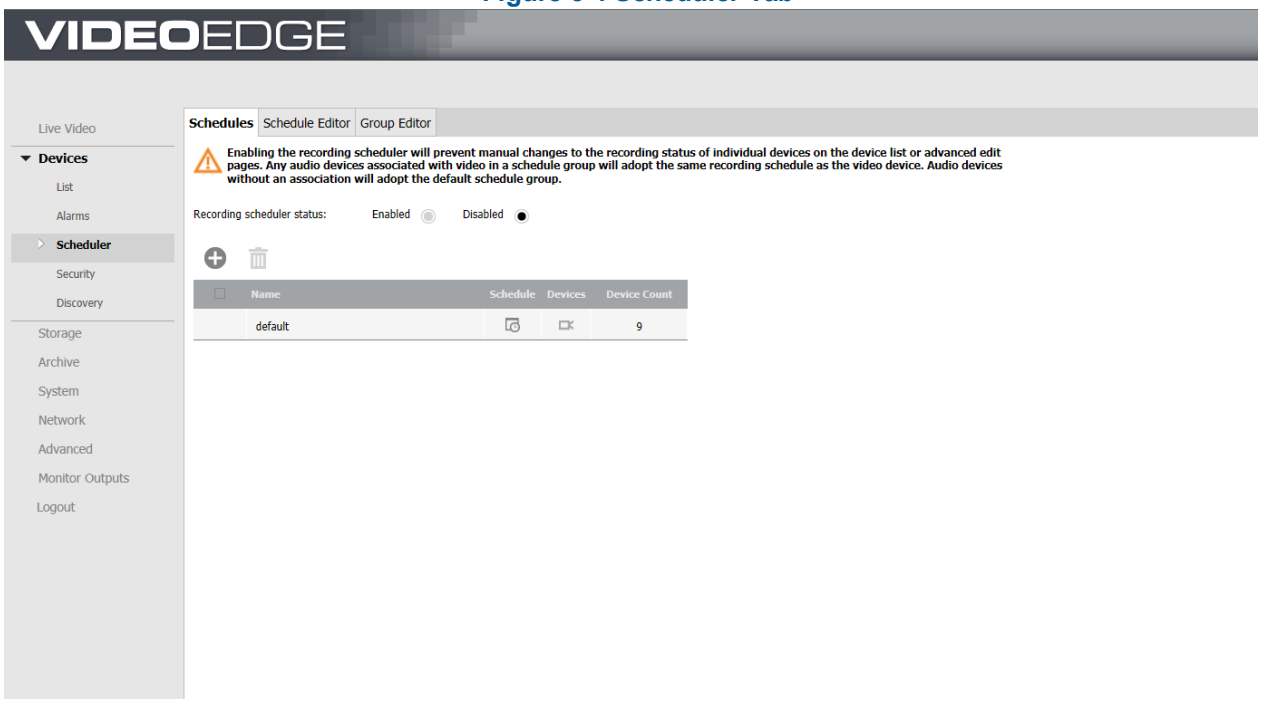
Step	Action
1	Select **Devices** from the main menu.
2	Select **Alarms**.
	The Alarms page opens.
3	Select the **Sensors** tab.
4	Select the appropriate checkbox of the sensor you want to delete.
5	Click .

- End -

Scheduler

The Scheduler section describes how to set up and enable the camera scheduler. By using a camera schedule you can set the NVR to automatically change recording modes hourly. You can define camera recording modes and set camera recording times per scheduler group. You can enable or disable the camera scheduler when necessary.

Figure 3-4 Scheduler Tab



There are three tabs within the Scheduler menu:

- **Schedules**: Where you can enable the scheduler and create or remove schedules.
- **Scheduler Editor**: Where you set the schedule times and recording modes for each period
- **Group Editor**: Where you select which cameras belong to a schedule. You can create multiple schedule groups where you can assign different cameras with different schedule times and record modes.

To create a recording schedule you need to:

1 Set up your scheduler group(s).

2 Set the schedule times and recording modes for the schedule group(s).

3 Assign camera(s) to the schedule group(s).

Schedules

Where you can enable the scheduler and create or remove schedules.

Procedure 3-54
Creating a Recording Schedule

Step	Action
1	Select **Devices** from the main menu.
2	Select **Scheduler**. The Schedules tab displays.
3	Click The new group is added to the schedule groups table.
4	Enter the Schedule **Name**.
5	Click .
6	Select **Edit Group Times** , in the schedule group record you want to configure. The Schedule Editor tab displays.
7	Select the option buttons representing the day(s) for which you want to set the recording times and the recording mode.
8	Select the required **Recording Mode** option button; • **Recording Off** • **Recording Always** • **Only Record on Alarm** • **Recording always with alarms**
9	Select the times you want the selected recording mode to be active.
10	Click .
11	To set other recording modes for different days and times, repeat steps 5 to 8 until the Schedule Times chart is set as required for the recording schedule group.
12	Select the **Group Editor** tab.
13	Select the cameras you want to be in this schedule group by selecting the checkbox(es) for the cameras from the **All other devices** list and use the arrow to move them to the **This group** list. **Note:** Each camera can only be assigned to one schedule.
14	Click .
15	Repeat steps 3 to 12 to configure additional schedule groups for the camera schedule.

- End -

Enabling/Disabling the Recording Schedule

Procedure 3-55
Enabling/Disabling a Camera Schedule

Step	Action
1	Select **Devices** from the main menu.
2	Select **Scheduler**. The Schedules tab displays.
3	To enable the camera schedule, select the **Recording scheduler status: Enabled** option button. Or To disable the camera schedule, select the **Recording scheduler status: Disabled** option button.

- End -

Editing the Recording Schedule

You can edit all aspects of the recording schedule as required.

Edit the Group Name

You may want to update the schedule group name to reflect changes made within the schedule group.

Procedure 3-56
Editing the Schedule Group Name

Step	Action
1	Select **Devices** from the main menu.
2	Select **Scheduler**. The Schedules tab displays.
3	Click in the group record that you want to rename. The group name field becomes editable.
4	Enter the new group name.
5	Click .

- End -

Edit the Recording Scheduler for a Group

Within the recording schedule associated to a group you can update the recording days and times as your needs change. The following procedure describes how to edit the recording schedule.

Procedure 3-57
Editing the Recording Schedule for a Group

Step	Action
1	Select **Devices** from the main menu
2	Select **Scheduler**. The Schedules tab displays
3	Select the **Schedule Editor** tab.
4	Select the group you want to edit from the **Group ID** drop down.
5	Edit the recording schedule as required by selecting the day(s), the recording mode and start and end hours.
6	Click .
7	If further changes are required repeat Steps 5 and 6.

- End -

Edit the Cameras Assigned to a Schedule Group

You can add or remove cameras to/from a schedule group when needed. This procedure describes how to edit cameras assigned to a specific schedule group.

Procedure 3-58
Editing the Cameras Assigned to a Schedule Group

Step	Action
1	Select **Devices** from the main menu.
2	Select **Scheduler**. The Schedules tab displays.
3	Select the **Group Editor** tab.
4	Select the group you want to edit from the dropdown.
5	Select the required camera(s) checkbox(es) and use the and arrows to move cameras between the **All other Cameras list** and the **This group** list, until the cameras you want to be assigned to the selected recording group are in the **This group** list.
6	Click .

- End -

Remove a Schedule Group

You can remove unwanted schedule groups when they are no longer needed.

Note:
If you remove a schedule, the cameras in this schedule will be assigned back to the default scheduler group.

Procedure 3-59
Removing a Schedule Group

Step	Action
1	Select **Devices** from the main menu.
2	Select **Scheduler**. The Schedules page opens.
3	Select the checkbox in the group record(s) that you want to delete.
4	Select . The group is removed from the Schedule groups table.

- End -

Security

When an IP camera is added to a NVR, the server uses the manufacturer's default communication and security settings to communicate with the camera. Administrators can change the default settings, however, when these are changed the NVR can no longer communicate with the camera using the default settings.

If you change the security settings for a camera or a number of cameras, usually through direct web interfaces, you need to create a Security Group for those cameras and assign it the same password.

Note:
1. The Security Groups feature does not change the password on the camera. It determines what password is used by the NVR to communicate with cameras.

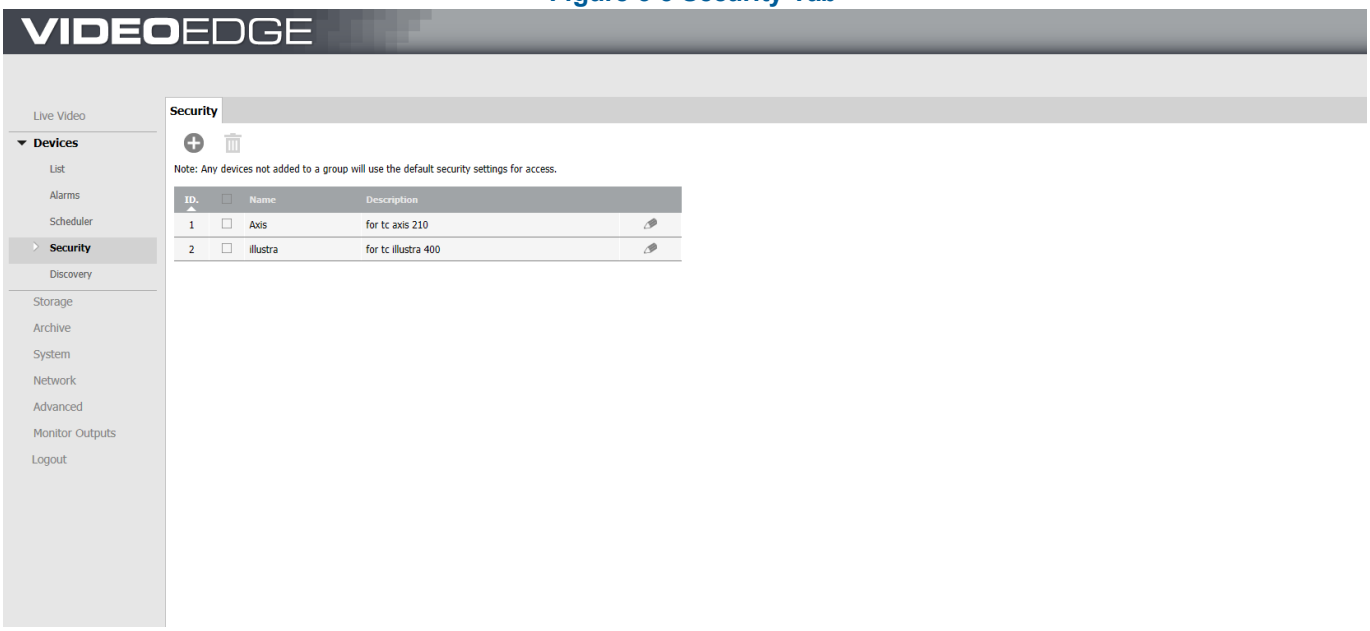
2. You must change the password on the camera before you change the password for the security group using the Security feature, otherwise those cameras will not be able to connect to the NVR.

In addition to configuring the username and password you can also configure the port number and protocol (Security Level) used for communications.

Note:
1. Port number: This is either the HTTP or HTTPS port number which has been specified for communication. The default port number will be used to communicate with the camera unless you specify a port. You must ensure the port number is correctly configured on the corresponding camera(s) for communication to be established.

2.Security Level: This is the protocol which will be used to communicate with the camera(s).

Figure 3-5 Security Tab



Create a Security Group

If a password has been changed for a camera or a group of cameras, the NVR is no longer able to communicate with the camera(s). You must create a security group containing the new password and assign the camera(s) with this password to it.

Procedure 3-60
Creating a Security Group

Step	Action
1	Select **Devices** from the main menu.
2	Select **Security**. The Security tab displays.
3	Select . The Security Group window opens.
4	Enter a **Group Name**.
5	Enter a **Description**.
6	Enter a **Username**.
7	Enter a **Password**. **Note:** This is the password that will now be used by the NVR to connect to the cameras in this security group.
8	Confirm the password in the **Confirm Password** field.
9	(Optional) Select **Advanced**.
10	(Optional) Select the **Security Level** from the dropdown.
11	(Optional) Enter the **Port** number. **Note:** Ensure the **Default** checkbox is selected if you want to use the default port number.
12	Select the cameras you want to assign to the security group by using the and buttons.
13	Click . **Note:** If you are editing the security group for a camera attached by an encoder, all cameras connected to the encoder will have the same password. Editing the security group for one camera on an encoder will result in all cameras on that encoder being assigned a new password. A message opens warning that multiple cameras will be updated.

- End -

Edit a Security Group

Security groups can be edited using the security tab.

Procedure 3-61
Edit a Security Group

Step	Action
1	Select **Devices** from the main menu.
2	Select **Security**. The **Security** tab displays.
3	Select in the group record you want to edit. The Security Group window opens.
4	Edit the **Group Name** as required.
5	Edit the **Description** as required.
6	(Optional) Select the **Set Username/Password** checkbox. Enter a **Username**. Enter a **Password** Confirm the password in the **Confirm Password** field.
7	Edit the **Security Level** using the dropdown as required.
8	Edit the **Port** as required.
9	Select the cameras you want to assign to the security group by using the and buttons.
10	Click .

- End -

Delete a Security Group

When you delete a security group, the NVR will try to communicate with the cameras that were in this group, using the manufacturer's default password.

In order for the NVR to successfully communicate with the cameras that were in this group, you must change the password for each camera back to the manufacturers default password, using the direct camera web interface, or reassign the cameras to a new security group.

Procedure 3-62
Deleting a Security Group

Step	Action
1	Select **Devices** from the main menu.
2	Select **Security**. The **Security** tab displays.
3	Select the checkbox in the security group record that you want to remove.
4	Click .

- End -

Discovery

The Device Discovery feature automatically discovers video devices on the network which can be added to the NVR.

Multiple devices can be added to the NVR until the number of video licenses on the NVR is exceeded.

Video devices will be added with a default recording status of Record Always.

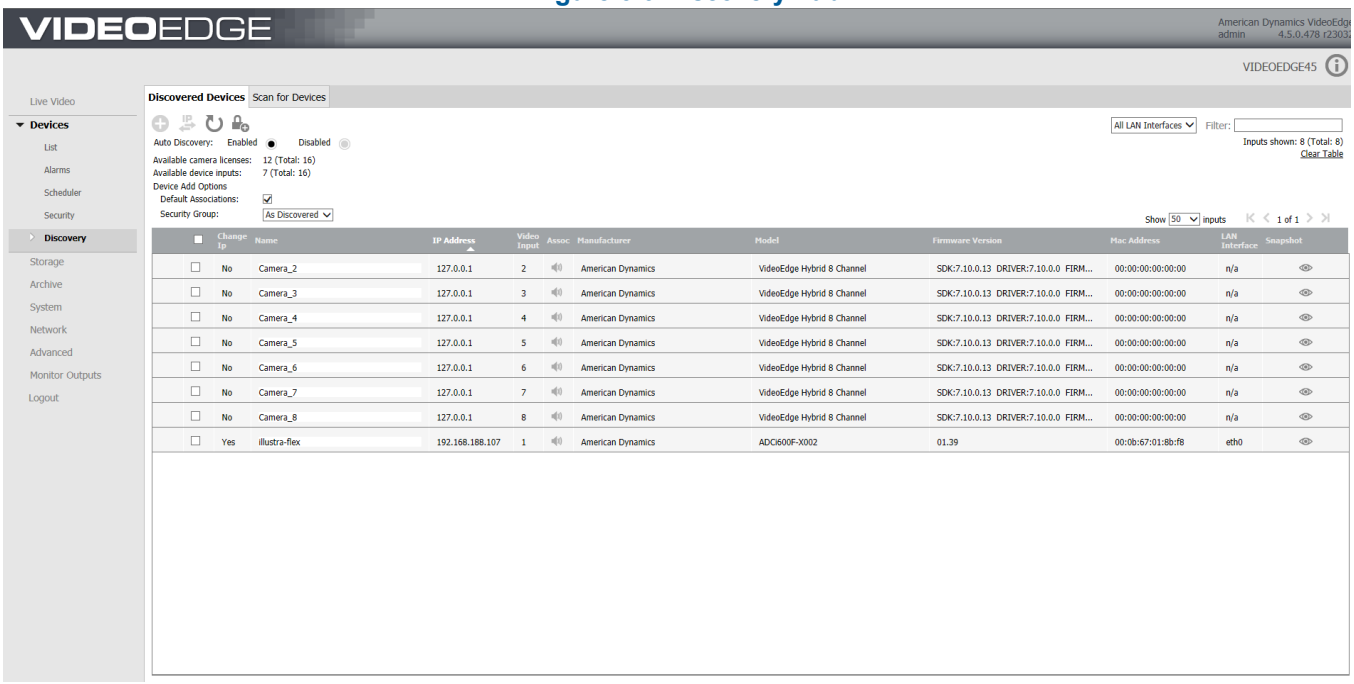
To discover devices, the NVR uses standard discovery protocols such as: MDNS, UPnP/SSDP, and Onvif/WS-Discovery. The NVR will discover video devices on the network that have these standard protocols enabled.

The NVR discovery feature supports changing the IP addresses of AD cameras.

By default, the NVR will discover video devices using the device manufacturer's default username and password. If video devices are configured with another username and password, then Security Groups can be configured on the NVR to allow for those devices to be discovered.

NVR Discovery: By default, the NVR advertises itself on the network via UPnP/SSDP. This feature allows the Victor client to discover VideoEdge recorders.

Figure 3-6 Discovery Tab


VIDEOEDGE
VIDEOEDGE45
Live Video
Devices
List
Alarms
Scheduler
Security
Discovery
Storage
Archive
System
Network
Advanced
Monitor Outputs
Logout
Discovered Devices
Scan for Devices
Auto Discovery: Enabled Disabled
Available camera licenses: 12 (Total: 16)
Available device inputs: 7 (Total: 16)
Device Add Options
Default Associations:
Security Group: As Discovered
All LAN Interfaces
Filter:
Inputs shown: 8 (Total: 8)
Clear Table
Show 50 inputs
1 of 1
Change Ip | Name | IP Address | Video Input | Assoc | Manufacturer | Model | Firmware Version | Mac Address | LAN Interface | Snapshot
No | Camera_2 | 127.0.0.1 | 2 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
No | Camera_3 | 127.0.0.1 | 3 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
No | Camera_4 | 127.0.0.1 | 4 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
No | Camera_5 | 127.0.0.1 | 5 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
No | Camera_6 | 127.0.0.1 | 6 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
No | Camera_7 | 127.0.0.1 | 7 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
No | Camera_8 | 127.0.0.1 | 8 | American Dynamics | VideoEdge Hybrid 8 Channel | SDK:7.10.0.13 DRIVER:7.10.0.0 FIRM... | 00:00:00:00:00:00 | n/a
Yes | illustra-flex | 192.168.188.107 | 1 | American Dynamics | ADCi600F-X002 | 01.39 | 00:0b:67:01:8b:f8 | eth0

Discovered Devices

When the discovered devices tab is selected, information on all discovered devices is displayed. From this tab the user add a camera, change the IP address of cameras, refresh the discovered device list,create a security group, clear the list of discovered devices and view camera snapshots.

Auto-Discovery is enabled by default and can be disabled if required in the discovered devices tab.

Camera snapshots can be viewed by clicking the snapshot icon in the Snapshot column for the device of interest.

Clicking the icon to will cause the NVR to probe for new devices and list all discovered devices.

Clear Table

Clicking **Clear Table** will cause the NVR to clear the list of discovered devices and begin discovering devices again.

For example, clearing the list of discovered devices can be useful if:

- user accounts are changed on the video device, or
- the number of encoder inputs are changed on the video device.

After the list of discovered devices is cleared, the NVR will re-discover devices with the new user account and learn the new encoder configuration.

Procedure 3-63
Add a Device using Auto-Discovery

Step	Action
1	Select **Devices** from the main menu.
2	Select **Discovery**. The Discovered Devices tab automatically displays all discovered devices.
3	(Optional) Use the **Show inputs** dropdown to display more results per page.
4	Select the checkbox(es) for the device(s) you want to add to the NVR from the Discovered device list.
5	(Optional) De-select the **Default Associations** checkbox if video / audio association is not required.
6	(Optional) Select the **Security Group** from the dropdown if device should be added with a specific security group. **Note:** This may be appropriate if the device supports more than one user account or security level.
7	Select the device rows to be added to the NVR.
8	(Optional) Edit the **Device Name**. The new device name will be applied when the device is added.
9	Click After each device is added, device(s) are displayed in the Video / Audio List tab.

- End -

Procedure 3-64
Changing the IP Address

Step	Action
1	Select **Devices** from the main menu.
2	Click **Discovery**. The Discovered Devices tab automatically displays all discovered devices.
3	Click **Change IP**.
4	Select **Use DCHP** or **Specify an IP address**.
5	If you selected **Specify an IP address**, enter the new **IP Address**.

Note:
Some cameras require a reboot to apply the new IP configuration. Within the Change IP screen, you can click refresh to check when the camera advertises itself with the new IP configuration.

6 Click

- End -

Scan for Devices

Some cameras do not support standard discovery protocols. To discover these cameras you can use NVR to perform a manual network scan for devices. The Scan for Devices tab allows you to manually initiate a scan on a specific network interface for cameras.

Procedure 3-65
Scan for Devices Manually

Step	Action
1	Select **Devices** from the main menu.
2	Click **Discovery**.
	The Discovered Devices tab automatically displays all discovered devices.
3	Select the **Scan for Devices** tab.
4	Select the **Security Group** from the dropdown.
5	Select the **LAN Interface** from the dropdown.
6	(Optional) Select the **Specify IP Address Range** checkbox.
7	Enter the **IP Address Range**.
8	Click **Start Scan**.
	Once discovered, you can now add devices to the NVR, add to a security group and view camera snapshots.

- End -

UPnP

By default, NVR UPnP advertisements are enabled to allow networked devices to be discovered by victor Unified Client. If required, this can be disabled.

Procedure 3-66
Disabling NVR UPnP Advertisements

Step	Action
1	Select **Network**.
2	Select **General**.
	The Network General tab displays.
3	Select the **UPnP Disable** option button.
4	Click **Save**.

UPnP will now disabled.

- End -

Troubleshooting

1 **Issue**: Some video devices are not automatically discovered.

a Verify that the video device had a standard discovery protocol enabled.

If the device does not support standard discovery protocols, then the 'Scan for Device' page can be used to manually scan for these devices.

b Verify that the video device is configured with the manufacturer's default username and password.

If another username and password is configured on the device, then create Security Group on the NVR with a matching username and password.

2 **Issue**: Cannot change the IP address of a video device.

a Check if the NVR interface and device's current IP address are on the same subnet.

Some video devices perform source IP filtering.

In order to change the video device's IP address, the NVR sends commands to the device's current IP address. If the device is performing source IP filtering, it will ignore any packets from the NVR that have a source IP that do not match the device's subnet.

Workaround:

- Temporarily disable recording of any devices on the NVR.
- Temporarily change the IP configuration of the NVR interface to match the camera's current subnet configuration.
- Use the discovery feature to change the video device's IP address.
- Change the IP configuration of the NVR interface back to its original IP address.
- Enable recording of devices on the NVR, as desired.

b The IP Address can updated on most American Dynamics cameras. Refer to your camera documentation for further information.

3 **Issue**: Not able to view snapshot of video device.

a Verify that the video device is IP reachable from the NVR.

When video devices advertise themselves via standard discovery protocols, the advertisements are multicast. Depending on the customer's network configuration, it is possible that the NVR can hear multicast traffic from the device, but it cannot reach the device via unicast IP.

4 **Issue**: No snapshot icon is displayed in Snapshot column.

a Verify that NVR is configured with a Security Group with a username and password that matches the camera's username and password.

Storage

Storage Menu Overview

Internal and external storage which has been correctly mounted can be enabled/disabled using the **Storage** menu. In addition the Storage menu is also used to create storage sets for load management to best utilize available internal and external storage.

The **Storage** menu has the following menu items;

- **Basic** - From here you can enable or disable storage devices connected to the NVR and set the Vault Media Quota.
- **Advanced** - From here you can create storage sets to allow for load balancing. Devices can then be assigned as required to best utilize your hardware.

Overview

NVRs can require a tremendous amount of storage space depending on the number of cameras, codec, resolution, frame rates, recording modes, and the duration for which you wish to preserve video recordings. At the outset of your use of the NVR system, you will need to have storage configured to record data. From time to time, you may find it necessary to replace or add a storage device to produce a greater capacity for video storage.

This chapter describes how to configure storage devices that are physically connected to the NVR and storage devices that are networked to the NVR over a TCP/IP connection.

There are two main storage configuration types, basic and advanced configuration. Basic configuration is the default configuration type where all storage devices and cameras are contained within one storage set. By using advanced storage configuration, you can create numerous storage sets and assign storage devices and cameras to storage sets as required to optimize disk performance.

Overview of Storage Sets

A storage set is a group of storage drives. One storage set is set up by default on an NVR. This is storage set 1. Initially the default storage set has all enabled storage devices, their media folders and cameras assigned to it, see Figure 6-1 Basic Storage Configuration.

A Media Folder is a location on a device where media can be recorded to. Media stored in these folders can include video, audio and analytic media. You can only have one media folder per storage device. You can choose which media folders on devices are to be used for storage.

Video from the cameras assigned to a particular storage set will record to the media folders on the storage devices that are assigned to the same storage set.

You can easily create additional storage sets and configure them as required to optimize the disk performance, as media can be recorded to storage sets in parallel.

Each storage set must have at least one assigned media folder for storage. You can assign multiple media folders and cameras to a storage set. It is recommended that you assign no more than 32 devices or cameras to a particular storage set.

Verifying Storage Devices

The Virtual Disks (aka LUNs or Volumes) may have all been detected by the NVR, but not necessarily configured for usage by the NVR. Ensure that your devices are listed in the Devices list on the Basic Storage Configuration page

before moving on to the next section. If any expected storage is missing from the Basic Storage Configuration page, then it is either physically disconnected, the storage device is not recognized due to improper configuration or lack of device driver support, and/or experiencing a storage hardware problem. This may also occur if the file system is not mounted.

Caution

If you are using RAID storage systems, you must create disk groups and virtual disks on your RAID hardware before setting up storage on the NVR. If you are not familiar with RAID configuration, refer to your storage system's user manual for more information.

Basic

Basic storage configuration is the default storage configuration type. Basic storage configuration is the configuration of media folders to be used for recording. All storage devices discovered by the NVR are listed in the Basic storage configuration table. All cameras added to the NVR are also automatically assigned to the default storage set. You can select which media folders you want to use for media storage, and set the amount of space available to store media. Table 6-1 below describes fields used for basic storage configuration.

Figure 4-1 Basic Storage Tab

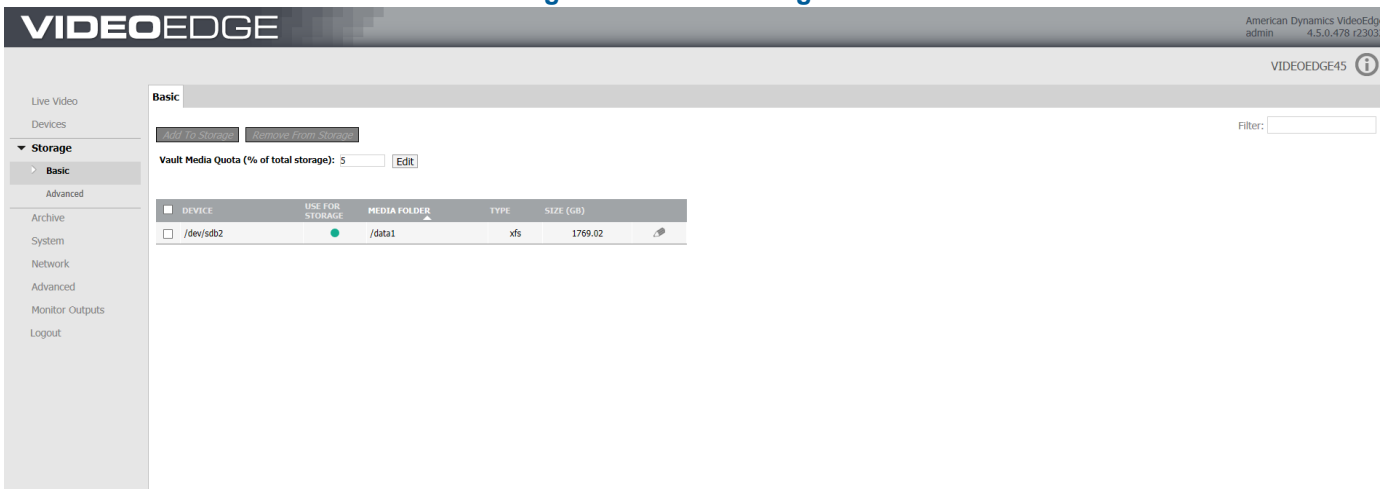


Table 4-1 Basic Storage Configuration Fields

Field	Description
Device	A physical device detected by the NVR.
Use for Storage	Indicates whether or not the device is being used for storage. Green indicator = Enabled for storage Gray indicator = Disabled for storage Red indicator = Media folder is unhealthy
Media Folder	The location on the device where recorded media will be stored.
Type	Indicates the file system type, for example; XFS.
Size (GB)	The total size of the storage device in GB.

Enabling Media Folders for Storage

If there are devices available in the basic storage configuration table, media cannot be recorded to these devices until the corresponding media folder(s) are enabled for storage. By default when a device is added to the NVR, the media folder is NOT enabled for storage. You must enable the media folders for storage in order to store media.

Procedure 4-1
Enabling a Media Folder to be Used for Storage

Step	Action
1	Select the **Storage** menu.
2	Select **Basic**. The Basic tab displays.
3	Select the checkbox for the media folder you want to use for storage and click **Add To Storage**. Or Select in the media folder record you want to use for storage, in the **Use For Storage** field select the dropdown arrow , click the **Enable** indicator then select . The **Use For Storage** indicator turns green, indicating that the media folder is to be used for storage. **Note:** If there has been media already stored in the folder a pop-up window will open asking 'Do you wish to delete all previously recorded media from this folder?'. Click **Yes** or **No** as required.

- End -

Disabling Storage Media Folders

If you need to remove a media folder from storage, you must disable it. When a media folder is removed from storage, the recorded media in the folder is not removed by default. You are given the option to retain or remove the recorded media. Information in the media database is however removed. When you remove a media folder, if the NVR is actively recording to that folder it will automatically transition recording to another media folder in the same storage set. Once a media folder is removed from storage the NVR will no longer record to that folder.

Procedure 4-2
Disabling a Storage Media Folder

Step	Action
1	Select the **Storage** menu.
2	Select **Basic**. The Basic tab displays.
3	Select the checkbox for the media folder you want to use for storage and click **Remove From Storage**. Or Select in the media folder record you want to use for storage, in the **Use For Storage** field select the dropdown arrow , click the **Disable** indicator then select .
4	Click **OK** to delete any previously recorded media. The **Use For Storage** indicator turns gray, indicating that the media folder is not being used for storage.

- End -

Data Culling

When there is not enough space in a storage set to store recorded media, media will be deleted.

If there is any media older than the maximum retention period specified for a specific camera, the media will be automatically deleted.

The available space in each storage set is determined periodically. If the available space in a storage set falls below the data-culling threshold, media will be deleted for any camera in the storage set which is older than the maximum retention period. If you do not set a maximum retention period for a camera, all media for this camera may be deleted to free up storage space, as the NVR will prioritize saving the media stored for cameras up to their maximum retention period. The oldest media is deleted first, minute by minute, until the free space limit is reached. If there is no media older than the retention period, the oldest media in the storage set is deleted and an alarm is raised.

Note:
The media deleted will only be the oldest media available online.

The alarm is an indication that there is insufficient storage space available for the media that you want to store. To resolve this issue you can add additional storage devices to the NVR, decrease the maximum retention period for camera(s) or use Advanced Storage Configuration settings to move cameras to another storage set.

Vaulted Media

Vaulted media is specific media tagged so it will not be deleted, until specified. Vaulted media will not be deleted as part of the normal data culling process of media storage folders.

Use victor unified client to tag media as protected media using the Vault feature. You must have 'Protect' permissions to set video as protected media. To allow vaulted media to be deleted you must set it as unprotected using victor unified client and have 'Unprotect' permissions. For more information refer to the Vault chapter in the victor Configuration and User Guide.

Vault Media Quota

A vault media quota is a percentage of the total storage available that is to be used to store vaulted media only.

Over time the amount of vaulted media within a storage set will accumulate. If too much vaulted media accumulates it may result in non vaulted media being prematurely culled when the storage space reaches its maximum capacity. A vault media quota can be set to prevent premature data culling as the amount of space for vaulted media is limited ensuring there is enough space for normal media storage.

When you are assigning media as vaulted, and if there is not enough storage space in the quota allocated to store the media as vaulted media, a warning message opens and you cannot assign the media as vaulted. You will need to increase the vault media quota or delete vaulted media.

Procedure 4-3
Setting a Vaulted Media Quota

Step	Action
1	Select the **Storage** menu.
2	Select **Basic**. The Basic tab displays.
3	Click .

4 Enter the required protected media quota, as a percentage of the total space available, in the **Vault Media Quota** field.

5 Click .

- End -

Advanced

The Advanced Storage Configuration options allow you to be flexible in setting up the storage on the NVR. You can spread media folders and cameras across storage sets to achieve higher system performance due to a lower total data rate required to record to each storage device.

Using the Advanced Storage Configuration page you can:

- Create storage sets
- Delete storage sets
- Add media folders to storage sets
- Move media folders between storage sets
- Assign cameras to storage sets
- Move cameras between storage sets
- Calibrate cameras

By using a combination of the advanced configuration options and your calculated storage requirements per camera, you can configure the NVR to achieve optimal efficiency and performance.

Storage Sets

By default there is one storage set created on the NVR. It initially contains all media devices detected by the NVR and are available to view through the Basic Storage Configuration page. Once a media folder on a storage device is enabled for storage in the Basic Storage Configuration page, the media folder is available for advanced configuration and is displayed in the Advanced Configuration page in Storage Set 1.

Figure 4-2 Advanced Storage Tab

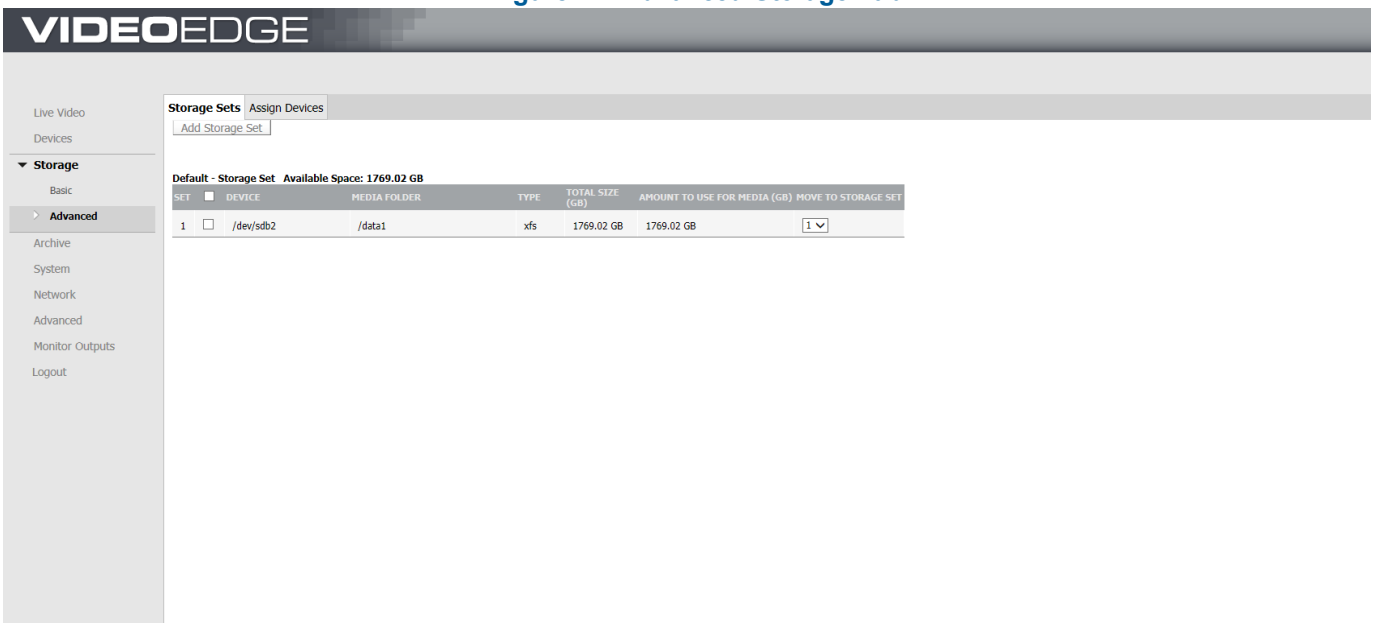


Table 4-2 Advanced Storage Configuration Fields

Field	Description
Set	This is the Storage Set the media folder is

Field	Description
	assigned to.
Device	This is a physical device detected by the NVR
Media Folder	The location on the device where recorded media will be stored.
Type	Indicates the file system type, for example; XFS.
Total Size (GB)	The total size of the storage device in GB.
Amount to Use for Media (GB)	The total amount of space to be used for storing media before data culling begins on the stored media. **Note** The amount of space to be used for media cannot exceed the total size of the storage device.
Move to Storage Set	A dropdown list of other storage sets available on the NVR. By selecting a storage set you will move the media folder to that storage set.

Creating Storage Sets

You can create a new storage set to group particular media folders and cameras. When a new storage set is created it contains no media folders or cameras, you need to reassign these from another storage set.

Storage Set Recommendations

- If you are using RAID storage systems, American Dynamics strongly recommends assigning all virtual disks from a disk group to the same storage set.
- It is recommended that a storage set should contain a minimal number of media folders, one if possible, maximizing the virtual disk size.
- The R720 bundled server storage set performance supports a maximum of 64 cameras with 200Mbps max on each storage set. Total input into server is 400Mbps.
- The Software Only option installed on the minimum requirement hardware supports a maximum of 32 cameras with 100Mbps max on each storage set. Total input into server is 400Mbps.

Procedure 4-4
Creating a Storage Set

Step	Action
1	Select the **Storage** menu.
2	Select **Advanced**. The Storage Sets tab displays.
3	Click **Add Storage Set**. A new storage set is created.

- End -

Media Folder Assignment for Storage Sets

When you create a new storage set you need to assign media folders and cameras to it. To assign media folders to a new storage set you need to reassign media folders from the default storage set or an existing storage set.

There is no limit to the number of media folders you can assign to a storage set. There are however some restrictions:

- You are able to add a system disk to a storage set by specifying a particular folder on the system disk. It is recommended that the folder you specify exists on a separate partition on the system disk.
- You will not be presented with Linux system file systems, for example, /proc, /sys, etc.

Note:
When allocating media folders from the same device or RAID group it is recommended to associate them with the same storage set. Hard drive thrashing can occur if media folders from the same hard drive are spread across several storage sets, this could result in the systems performance being downgraded when the hard drive is being overworked.

When a media folder is moved to another storage set, all previously recorded media will still be retrievable via clip export and playback in victor unified client.

Procedure 4-5
Assigning / Reassigning Media Folders to a Storage Set

Step	Action
1	Select Storage from the main menu.
2	Select **Advanced**. The Storage Sets tab displays.
3	Locate the media folder in its existing storage set that you want to move to a new storage set.
4	Select the new storage set you want to assign the media folder to, from the Move to Storage Set dropdown list. The media folder is reassigned to the new storage set.

- End -

Assign Devices

Assigning Cameras to Storage Sets

During the process of adding cameras to the NVR, if only one storage set is available, the new camera will be added to this storage set. However, if there are a number of storage sets available you will be prompted to assign the camera to the required storage set. Cameras can be reassigned to different storage sets as required without needing to remove and re-add the camera. If you are adding cameras using auto-discovery the cameras will be added to the default storage set.

Procedure 4-6
Reassigning a Camera to a Different Storage Set#

Step	Action
1	Select **Storage** from the main menu.
2	Select **Advanced**.

The Storage Sets tab displays.

3 Select the **Assign Devices** tab.

A summary of cameras assigned to storage sets are displayed.

4 Locate the camera you want to reassign in its existing storage set.

5 Select the storage set you want to reassign the camera to from the **Move to Storage Set** dropdown list.

The camera is reassigned to the selected storage set.

- End -

Calibrating Cameras

The data transfer rate for a camera is displayed in each storage set table. This is recorded in the **Estimated Kbps** field. The data transfer rate displayed in this field usually displays the average rate over the last 24 hour period in kbps. You can use the Calibrate camera function to calculate the data transfer rate in kbps for each camera over the last two minutes. This will give an up to date data transfer rate for each camera. You can use this information to optimize the performance of your NVR by reassigning cameras to storage sets based on the current data transfer rates.

Procedure 4-7
Calibrating Cameras

Step	Action
1	Select **Storage** from the main menu.
2	Select **Advanced**. The Storage Sets tab displays.
3	Select the **Assign Devices** tab. A summary of cameras assigned to storage sets are displayed.
4	Click **Calibrate**. The **Estimated Kbps** field for each camera is updated with the data transfer rate for the last two minutes.

- End -

Deleting Storage Sets

You can delete storage sets as required, however, the default storage set cannot be deleted.

Note:
Before you delete a storage set you need to ensure that it contains no assigned cameras or media folders.

Procedure 4-8
Deleting a Storage Set

Step	Action
1	Select **Storage** from the main menu.
2	Select **Advanced**. The Storage Sets tab displays.
3	Reassign all media folders currently assigned to the storage set you want to delete.

4 Reassign all cameras currently assigned to the storage set you want to delete.

5 Click .

6 Click .

Note:
If you have not reassigned all cameras and media folders the NVR will not allow you to delete the storage set.

- End -

Storage Statistics

The NVR holds and displays storage statistics for storage devices, storage sets and cameras that are being used in the NVR storage configuration. These can be accessed via the Advanced menu. Refer to Storage Statistics for more information

Storage Monitoring

All media folders assigned to a storage set will be monitored by the NVR to determine that they are operational and available for storing media.

The media folders are checked to ensure they are still mounted and read/writable. It is possible that media folders can become unmounted due to system errors, device errors or the device being unmounted by a user. A media folder could become read-only, for example, if the device has been unmounted and remounted as read-only.

If a media folder is determined as non-operational, recording will switch to the next available operational media folder in the storage set.

Non-operational media folders are highlighted as being unhealthy. To determine the health status of storage devices, view the Status in the Device section of Storage Statistics.

Adding External Storage

NVRs can require a tremendous amount of storage space depending on the number of cameras, codec, resolution, frame rates, recording modes, and the duration for which you want to preserve video recordings. At the outset of your use of the NVR system, you will need to have storage configured to record media data captured by video devices (cameras or encoders) connected to your NVRs. From time to time, you may find it necessary to replace or add a storage device to produce a greater capacity for video storage.

This section provides instructions for connecting external storage devices and using them with the NVR. It is assumed that the storage device's Disk Groups (RAID set) and Virtual Disks (LUNs) have been properly configured and the device has been physically connected to the NVR. Use the operating system to mount any local storage device or any network storage device to the NVR.

Storage Concepts

iSCSI

- This standard is used to transmit data over local area networks (LANs), wide area networks (WANs) and can enable location-independent data storage and retrieval.
- A system that uses iSCSI requires an initiator. Initiators are iSCSI clients and they can either be in software or hardware.
- iSCSI does not require dedicated cabling; it can use existing switching and IP equipment. As a result, iSCSI is thought to be a low-cost alternative to Fiber Channel, which requires dedicated infrastructure.

Fiber Channel

- Fiber Channel, or FC, is a gigabit-speed network technology primarily used for storage networking. It got its start in the supercomputer field, but has become the standard connection type for storage area networks (SAN) in enterprise storage.
- Fiber Channel Host Bus Adapters (HBAs) are available for all major open systems, computer architectures, and buses, for example, PCI. They are needed to connect a Fiber storage device to a server.

Direct Attached Storage

- This term is used to differentiate non-networked storage from networking systems such as NAS and SAN.
- However, DAS cannot share information or space with other servers.
- DAS are usually connected via SCSI cables, along with a SCSI terminator.
- DAS can also be connected via eSATA or USB.

Storage Types

- **JBOD** – Just a Bunch of Disks
- **RAID** – Redundant Array of Inexpensive Disks

JBOD

- The JBOD storage configuration is a group of disks without any RAID features, depending on configuration in BIOS.
- In NVR systems, JBOD is rarely used with external devices.

RAID

- An umbrella term for computer data storage schemes that distribute data across multiple disks for increased input/output performance and/or better reliability.
- Since RAID systems use multiple disks, they are often referred to as disk groups.
- Disk groups are also known as volumes or RAID arrays.
- There are different types of RAID configurations. Some of the best known configurations are RAID 0, 1, 5 and 1+0.
- Each configuration uses an approach to storage that can provide fault tolerance, additional availability of data, redundancy, additional performance, or more than one of these factors.

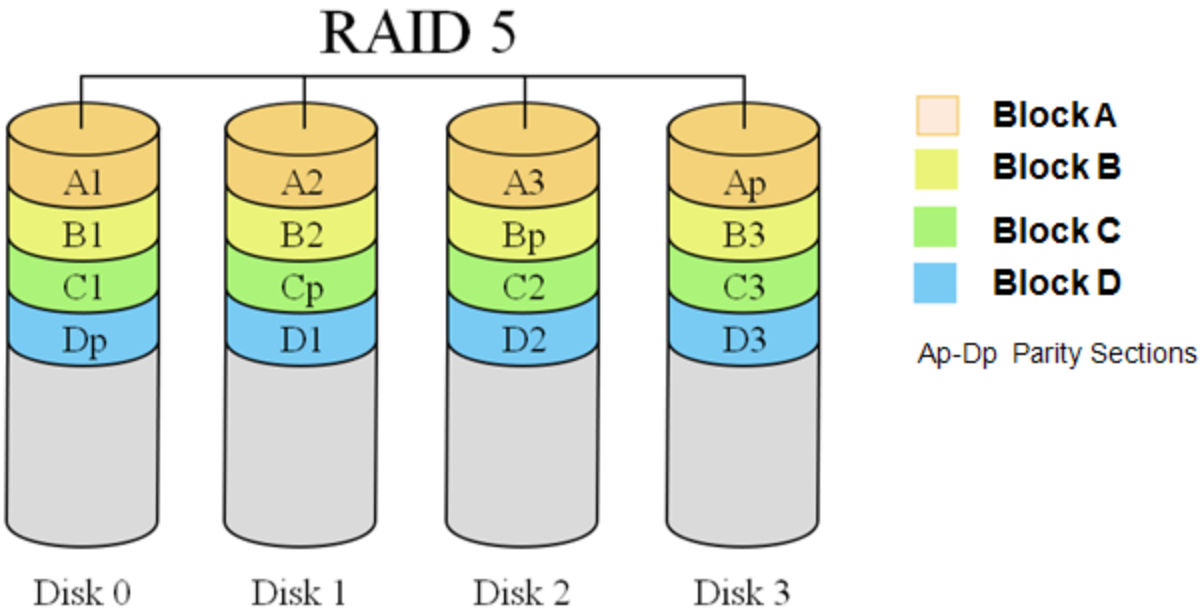
Key RAID Concepts

- **Mirroring** – Duplicating data to more than one disk.
- **Striping** – Splitting data across more than one disk.
- **Error Correction** – Storing redundant data so problems can be detected and possibly fixed.

Common RAID Types

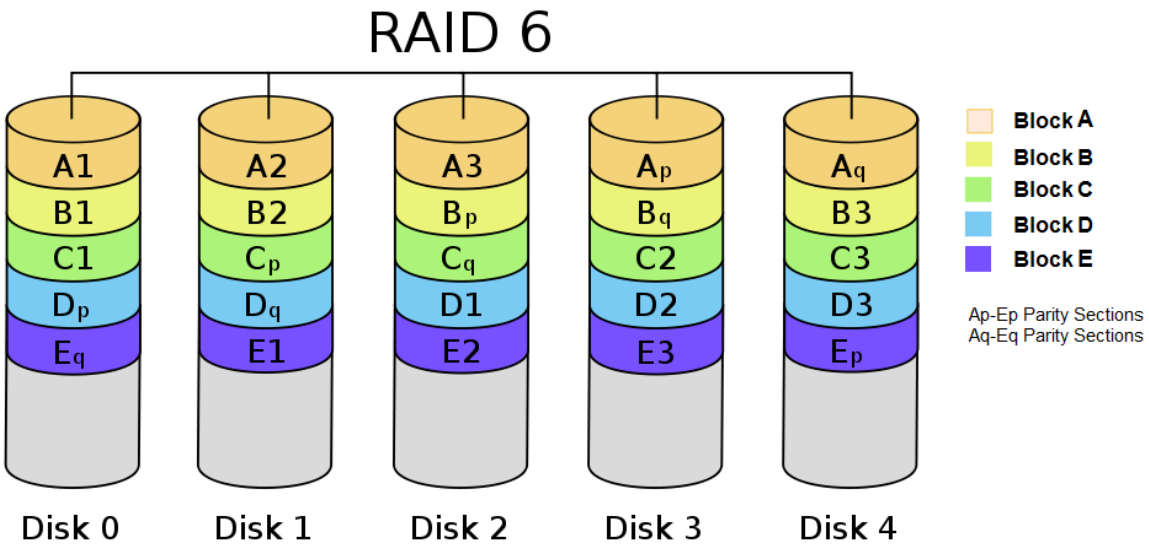
- **RAID 0** – Uses striping to provide extra performance and capacity but does not provide data protection (lack of mirroring or parity).
- **RAID 1** – Uses mirroring to provide 1:1 backup, which increases read performance or reliability at the expense of capacity. This configuration is often used with databases due to better transaction time and availability.
- **RAID 1+0** (or 10) – is a mirrored data set (RAID 1) which is then striped (RAID 0), hence the name “1+0”. A RAID 1+0 array requires a minimum of four drives – two mirrored drives to hold one half of the striped data, plus another two mirrored drives to hold the other half of the data. In LINUX, MD RAID 10 is a non-nested RAID type like RAID 1 that only requires a minimum of two drives and may give read performance on the level of RAID 0.
- **RAID 5** – Preserves against the loss of any one disk by combining the contents of three or more disks. However, the total storage capacity is reduced by one disk. This configuration is often used with VideoEdge because of RAID 5’s performance in situations where data transfers are I/O intensive (“RAID 5 Performance Benchmarks” The Server Company).

Figure 4-3 RAID 5



- **RAID 6** - Preserves against the loss of two disks failing at once by combining the contents of three or more disks. However, the total storage capacity is reduced by two disks.

Figure 4-4 RAID 6



Virtual Disks (Logical Unit Numbers)

1 A virtual disk represents an individually addressable (logical) SCSI device that is a partition of a physical SCSI device (target).

2 Virtual disks are also known as volumes or LUNs.

3 In enterprise-level systems, virtual disks usually represent segments of large RAID disk arrays.

Storage Strategy

In order to properly configure an NVR, it is important to understand how much storage you will require and how to configure it to maximize the overall performance.

To configure storage on an NVR you must consider:

1 Storage

- The type of storage to be used (Internal HDDs, iSCSI external storage, Fiber Optic external storage, USB external hard drives, etc).
- The storage configuration (RAID 0, RAID1, RAID 5, RAID 6, JBOD, etc).

2 Cameras

- Total number of cameras.
- Type of cameras (make/model, resolution, codec, FPS, compression, recording mode).
- The file size of the camera's video stream that is to be recorded.

3 The required recording retention period for stored video.

Below details some different storage usage examples and are compared to the NVR 4.1 storage model:

- **Example 1: Using a 20TB RAID set**

NVR 4.1: 20TB RAID set is divided into 10 2TB logical volumes. There are **10 storage devices** seen on the NVR.

NVR 4.2+: 20TB RAID set can be added as 1 20TB volume. The NVR will recognize this as **1 storage device** that can be used for storage. Alternatively you can create 10 2TB logical partitions. The NVR will recognize this as **10 storage devices** that can be used for storage.

NVR 4.2.1+ (Migrated from 4.1): 20 TB RAID set is still divided into 10 2TB logical volumes. Each 2TB volume is represented as 14 storage devices. The NVR will recognize this as **140 storage devices** that can be used for storage.

- **Example 2: Configuration Set up**

NVR 4.1: Storage configuration is performed using the NVR Administration Interface.

NVR 4.2+: Storage configuration is performed using Linux YaST/Partitioner.

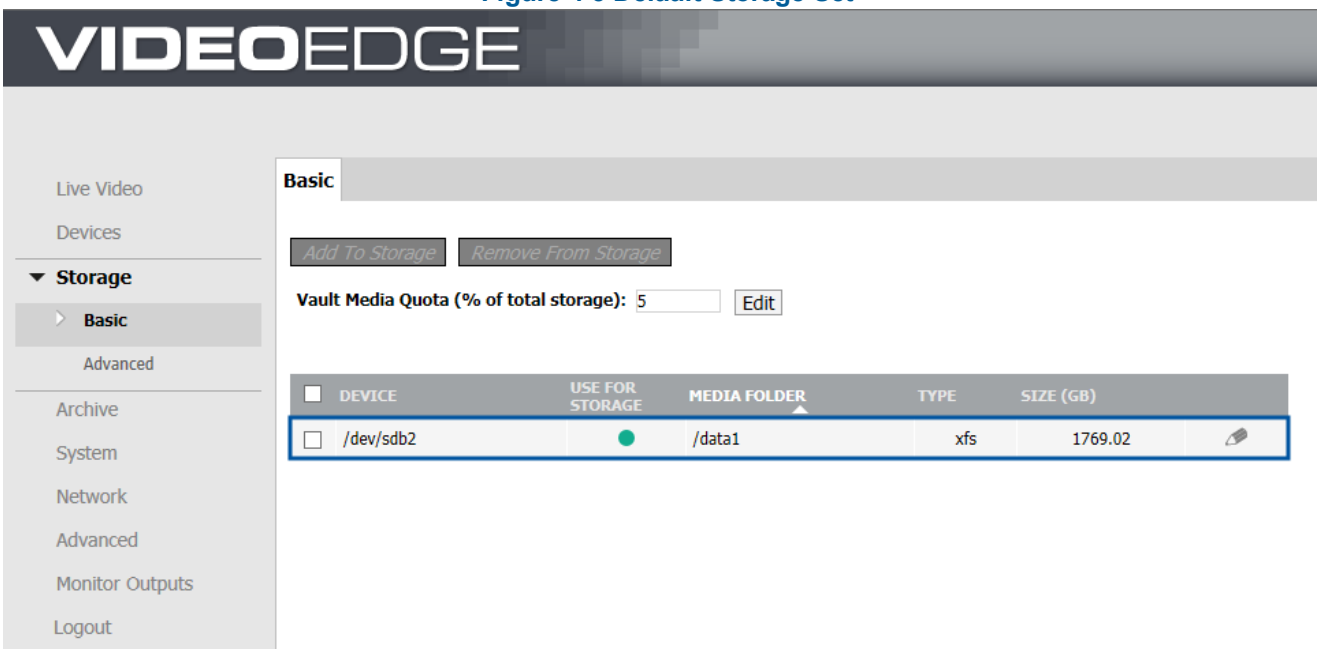
If you want to use the XFS file system for maximum throughput, additional file system options need to be configured. For Internal devices, you need to configure; **rw,noatime,nodiratime,attr2,nobarrier,noquota,allocsize=4m,inode64**,**nodelaylog**. For external devices, including iSCSI and Fiber Optic, you need to configure; **nofail,rw,noatime,nodiratime,attr2,nobarrier,noquota,allocsize=4m,inode64,nodelaylog**.

Note:
nobarrier should only be used on storage devices connected to disk controllers with battery backed cache.

Understanding Storage Sets

The NVR uses a feature called Storage Sets. These are groups of storage drives and cameras. By default the NVR has one storage set - Storage Set 1. Initially the default storage set has all detected storage devices, their media folders and cameras assigned to it.

Figure 4-5 Default Storage Set



A Media Folder is a location on a device where media can be recorded to. Media stored in these folders can include video, audio and analytic media. You can only have one media folder per storage device partition or storage device, depending on your storage configuration. You can choose which media folders on devices are to be used for storage.

Video from the cameras assigned to a particular storage set will record to the media folders on the storage devices that are assigned to the same storage set.

You can easily create additional storage sets and configure them as required to optimize the disk performance, as media can be recorded to storage sets in parallel.

Each storage set must have at least one assigned media folder for storage. You can assign multiple media folders and cameras to a storage set. There is no limit to the number of storage sets you can create. It is recommended that you assign no more than 32 devices or cameras to a particular storage set. For example, if an NVR has a 30 camera license, you could have the following storage set options:

2 Storage Sets

- Storage Set 1 = 15 CAMs record to first set of drive(s)
- Storage Set 2 = 15 CAMs record to second set of drive(s)

Or

- Storage Set 1 = 20 CAMs record to first set of drive(s)
- Storage Set 2 = 10 CAMs record to second set of drive(s)

3 Storage Sets

- Storage Set 1 = 10 CAMs record to first set of drive(s)
- Storage Set 2 = 10 CAMs record to second set of drive(s)
- Storage Set 3 = 10 CAMs record to third set of drive(s)

Or

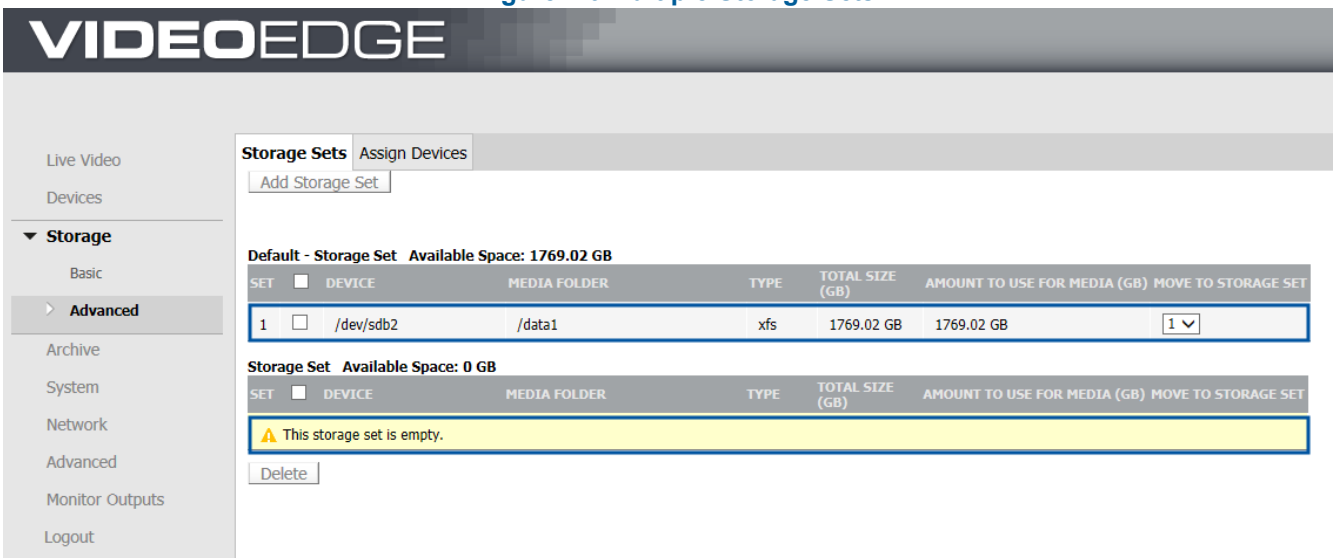
- Storage Set 1 = 16 CAMs record to first set of drive(s)
- Storage Set 2 = 7 CAMs record to second set of drive(s)

- Storage Set 3 = 7 CAMs record to third set of drive(s)

Note:
1. The lower number of cameras per storage set, the higher achievable throughput. This is due to a lower total data rate required to record to each storage device.

2. High bit rate cameras (e.g. megapixel) should be spread across storage sets for load balancing.

Figure 4-6 Multiple Storage Sets



Caution

Avoid assigning Virtual Disks from the same Disk Group to different storage sets. If this is done, there is a high probability that continuous disk thrashing will cause the storage device to lock up and cause undesirable results to the NVR.

Calculating Storage Requirements

You need to have enough storage space to fulfill your video recording requirements without data being culled unnecessarily. To ensure you do have enough storage it is important to carefully calculate your storage requirements.

Procedure 4-9
Calculating Storage Requirements

Step	Action
1	Determine the quantity of Edge Devices and Anticipated Settings Make/Model, Codec/Rez/FPS/Compress, Activity, Record Hours.
2	Calculate the Data Rate for each device using Vendor Calculators. For example; • AD http://www.americandynamics.net/calculators/calc_4C_VideoEdge_IP_Encoder.html

- Axis
  http://www.axis.com/products/video/design_tool/calculator.htm
- Sony
  http://pro.sony.com/bbsccms/ext/cat/camsec/cameraCalc3/HTML/NTSC_Calculator.html

3 Enter the required information into the NVR Storage Requirement Calculator.

http://www.americandynamics.net/calculators/Calc_NVR_Storage_Requirement.html

4 The calculator output provides the **Total Storage for All Cameras** and the **Total Bandwidth for All Cameras**.

You may need to lower the camera count per NVR to meet network and storage requirements when dealing with many cameras, large resolution, or retention.

- End -

Overview of AD Fiber RAID Storage (FRS/FES)

Fiber RAID Storage is an NVR extended storage device acting as a Fiber Direct-Attached Storage (DAS) or iSCSI device.

As a Fiber device, a Fiber Host Bus Adapter (HBA) must be installed in the NVR and uses Fiber Optic cable connection.

As an iSCSI device, 3rd Gigabit Ethernet NIC must be installed in the NVR and uses CAT 5e/6 Ethernet connection. This is already installed in the NVR servers.

Second Generation American Dynamics iSCSI and Fiber RAID Storage

The second generation American Dynamics iSCSI and Fiber RAID Storage solutions are designed for high-performance recording devices. They are secure and highly scalable storage solutions that provide SAN storage for virtually any network and application.

The new Rack Mount models are available in a variety of configurations and capacities. There are iSCSI RAID, 4Gb Fiber RAID, and Expansion models which have been uniquely designed to utilize the same 3U chassis. These storage solutions come standard with redundant power supplies and fans, and nearly every component is hot-swappable, including sixteen lockable hot-swap drives. An optional battery backup module is also available for the iSCSI and Fiber RAID units.

Storage Strategy for FRS/FES RAID Device

Recommendations

- The FRS/FES supports a maximum of eight (8) Disk Groups (aka RAID sets).
- Each Disk Group can be “carved up” into one or more Virtual Disks (aka Volumes or LUNs). It is recommended to try to maximize each virtual disk size.
- It is recommended that Virtual Disks from a single Disk Group are all assigned to the same NVR Storage Set. This will eliminate the possibility of unnecessary disk thrashing caused when the same set of physical disks (DGs) are being used by different sets of cameras (aka Storage Sets).
- Verify that you have the latest firmware patch or upgrade for your controller.
- Make sure to leave a minimum of a 2U space between storage units.
- Start the camera’s recording after all the drives have been formatted and their status is “Normal”.

Connecting NVR to FRS/FES Using Fiber

Before configuring external storage you must stop NVR Services.

Once you have connected and configured external storage devices, you must restart the NVR Services.

Procedure 4-10 Connecting NVR to FRS/FES Using Fiber

Step	Action
1	Power OFF the NVR and install the Fiber HBA Kit (PCI-e). Connect the AD Fiber RAID Storage to the NVR.
2	Reboot the NVR and log in to the NVR desktop as the Root User.
3	Select **Computer**.
4	Select **YaST** from the System menu. The Control Center opens.
5	Select **Partitioner**. A warning message opens.
6	Click **Yes**. The Expert Partitioner window opens.
7	Expand the **Hard Disks** menu.
8	Right-click the new storage device from the list of hard disks, then click **Edit**.
9	Click **Add**. The Add Partition window opens.
10	Set the new partition size. You can select **Maximum Size**, **Custom Size** and enter a value, or select **Custom Region** where you can choose the disk cylinders for the partition. **Note:** In order to use a disk partition for storage it must meet the minimum storage capacity requirements, 10GB.
11	Click **Next**.

12 Ensure the **Format partition** option button is selected. Select **XFS** from the **File system** dropdown menu.

13 Select the **Mount Partition** option button.

14 Enter the **Mount Point** for the disk.

15 Select the **Fstab Options...** button.

16 Select the **Volume Label** option button.

17 Enter a **Volume Label** in the field.

18 Enter **nofail,rw,noatime,nodiratime,attr2,nobarrier,noquota,allocsize=4m,inode64**,**nodelaylog** in the **Arbitrary option value** field.

Note:
nobarrier should only be used on storage devices connected to disk controllers with battery backed cache.

19 Click **OK**.

Note:
Each mount point should have a unique name, however, it is good practice to use a folder structure naming convention, for example,
mount point 1: /data/media1,
mount point 2: /data/media2,
mount point 3: /data/media3, etc.

20 Click **Finish**.

21 Click **Next**.

The Expert Partitioner Summary displays a list of the changes that will be made to the NVR partitions.

22 Click **Finish**.

The Perform Installation page opens and the disk partition for the new storage device is created.

23 Configure the NVR to allow the new disk to be used for storage:

a Open a web browser.

b Enter the IP address of the NVR into the URL field.

The NVR login dialog box opens.

c Enter the Administrators **User name** and **Password**.

User name: **admin**

Default Password: **VIDEO!edge23**

d Select **Storage** from the main menu.

e Select **Basic**.

The Basic Storage Configuration page opens.

f Locate the new storage device in the summary table and select the checkbox in the storage device record.

g Click **Add to Storage**.

24 The connection and configuration of a fiber storage device is complete. The fiber device can now be used to store media from the NVR.

- End -

Connecting NVR to FRS/FES Using iSCSI

Before configuring external storage you must stop NVR Services.

Once you have connected and configured external storage devices, you must restart the NVR Services.

Procedure 4-11
Connecting NVR to FRS/FES Using iSCSI

Step	Action
1	Power OFF the NVR and install the iSCSI NIC Card (LAN3) into correct and compatible slot.
2	Connect the iSCSI RAID Storage device to a switch or directly to NVR LAN3 to ensure that it is accessible.
3	Open a web browser.
4	Enter the IP address of the iSCSI storage device into the **URL** field. The web configuration interface for the iSCSI storage device opens.
5	Enter the **User name**. **Note:** The default User name is **admin**.
6	Enter the **Password**. **Note:** The default Password is **admin**.
7	Set up the NIC IP settings for the iSCSI port: a Select **iSCSI Configuration** from the iSCSI RAID Rack menu. The iSCSI Configuration sub-menu items are displayed. b Select **NIC**. A summary of all NICs available in the storage device are displayed. c Check the values in the **Link** fields. If the value is **Up**, this represents that a cable is present connecting the storage device and the NVR. This is the NIC you need to configure. d Select the dropdown list in the **Name** field for the NIC with the **Link** field value set to Up. e Select **IP Settings for iSCSI ports** from the dropdown list. The NIC IP settings page opens. f If required, edit the Static **Address**, **Mask** and **Gateway**. **Note:** If there are no DHCP settings available these fields will contain the default values, Address: 10.10.10.20, Mask: 255.255.255.0 and Gateway: blank. g Click **Confirm**. The NIC settings page closes and the NIC summary details are displayed.
8	Create a Node to associate the storage NIC with an NVR port: a Select **Node** from the iSCSI Configuration sub-menu. b Click **Create**.

c Enter a **Name** for the Node.

d Select the type of **Authentication** from the dropdown list. The default is **None**.

Note:
Select **CHAP** to use a password for data transfer.

e Select the checkbox for the required **Portal**. This is the portal which contains the NIC IP address.

f Click **Confirm**.

9 Assign the required Virtual Drives a LUN:

Note:
The Virtual Drives are pre-configured on the storage device.

a Select Volume configuration from the iSCSI RAID Rack menu.

The Volume configuration menu expands.

b Select **Logical Unit**.

c Click **Attach**.

d Select the virtual disk from the **VD** dropdown list.

e Select the LUN from the **LUN** dropdown list.

f Click **Confirm**.

The Virtual Disk is assigned to the LUN and appears in the Logical unit summary table.

g Repeat Steps c to f to assign all the required Virtual Disks to a LUN.

10 Configure the Network Settings on the NVR:

a Log in to the NVR desktop as the Root user.

b Select Computer.

c Select YaST from the System menu.

d The Control Center opens.

e Select Network Settings from the Network Devices section.

The Initializing Network Configuration window displays momentarily and the Network Settings page opens.

f Select the **Overview** tab.

g Select the storage network card.

h Click **Edit**.

i Select the **Statically assigned IP Address** option button.

j Enter the **IP Address**.

k Enter the **Subnet Mask**, 255.255.255.0.

l Enter the **Hostname**.

m Click **Next**.

n Click **OK**.

o Close the Network Settings window.

11 Test the network connection between the NVR and the iSCSI storage device:

a Double-click **GNOME Terminal** on the desktop.

The Terminal window opens.

b Type ping followed by the IP address of the storage device, for example, ping 192.168.8.1. Press **[Enter]**.

Note:
If the connection is unsuccessful, a 'Destination Host Unreachable' message is displayed. Check the connections and network settings and retry.

c Close the Terminal window.

12 Connect the storage device using the iSCSI initiator:

a In the Control Center, enter iSCSI into the Filter field.

b Select **iSCSI Initiator**.

The iSCSI Initiator Overview window opens. The Discovered Targets tab displays the discovered storage devices. At this stage the value in the Connected field is False.

c Select the **Service** tab.

d Select the **When Booting** Service Start option button.

e Select the **Discovered Targets** tab.

f Click **Discovery**.

g Enter the **IP Address**.

Note:
This is the IP Address of the storage device.

h Enter the **Port**. The default port number is **3260**.

i Select the **No Authentication** checkbox.

j Click **Next**.

The iSCSI storage device is listed in the Discovered Targets table.

k Select the storage device and click **Log In**.

l In the **Startup** field select **Automatic** from the dropdown list.

m Click **Next**.

The value in the **Connected** field has been updated to True. This means the storage device is connected to the NVR.

n To confirm the storage session is connected, log into the storage web interface (see Steps 3 to 6), select the **iSCSI configuration** in the menu, select **Session** and ensure the session is connected with the correct initiator name.

13 Mount the storage drive on the NVR:

a Select **Partitioner** from the System section in the Control Center.

A warning message opens.

b Click **Yes**.

The Expert Partitioner window opens.

c Expand the **Hard Disks** menu.

d Select the new storage device from the list of hard disks.

Information about the storage partitions on the disk is displayed in the Partitions tab.

e Click the **Expert** dropdown list.

f Select **Create New Partition Table** from the dropdown.

A message box opens.

g Select the **GPT** partition type.

h Click **OK**.

A message box opens to confirm that you are sure you want to create a new partition.

i Click **Yes**.

j Click **Add**.

The Add Partition window opens.

k Set the new partition size. You can select **Maximum Size**, **Custom Size** and enter a value, or select **Custom Region** where you can choose the disk cylinders for the partition.

Note:
In order to use a disk partition for storage it must meet the minimum storage capacity requirements, 10GB.

---

l Click **Next**.

m Ensure the **Format partition** option button is selected. Select **XFS** from the **File system** dropdown menu.

n Select the **Mount Partition** option button.

o Enter the **Mount Point** for the disk. de

p Select the **Fstab Options...** button.

q Select the **Volume Label** option button.

r Enter a **Volume Label** in the field.

s Enter **nofail,rw,noatime,nodiratime,attr2,nobarrier,noquota,allocsize=4m,inode64,nodelaylog** in the **Arbitrary option value** field.

Note:
nobarrier should only be used on storage devices connected to disk controllers with battery backed cache.

---

t Click **OK**.

Note:
Each Mount Point should have a unique name, however, it is good practice to use a folder structure naming convention, for example,
mount point 1: /data/media1,
mount point 2: /data/media2,
mount point 3: /data/media3, etc.

---

u Click **Finish**.

v Click **Next**.

The Expert Partitioner Summary displays a list of the changes that will be made to the NVR partitions.

w Click **Finish**.

The Perform Installation page opens and the disk partition for the new storage device is created.

14 Configure the NVR to allow the new disk to be used for storage:

a Open a web browser.

b Enter the IP address of the NVR into the **URL** field.

The NVR login dialog box opens.

c Enter the Administrators **User name** and **Password**.

User name: **admin**

Default Password: **VIDEO!edge23**

d Select **Storage** from the main menu.

e Select **Basic**.

The Basic Storage Configuration page opens.

f Locate the new storage device in the summary table and select the checkbox in the storage device record.

g Click **Add to Storage**.

15 The connection and configuration of an iSCSI storage device is complete. The iSCSI storage device can now be used to store media from the NVR.

- End -

Archive

Overview

The NVR's Archiving feature allows you to save to and retrieve video from long term storage in the form of a dedicated Network Attached Storage (NAS).

Note:
Network Attached Storage devices may require pre-configuration before they can be used for archiving tasks. Refer to your products Installation and User Manual for more information.

The Archive menu allows you to add and configure Archive destinations, apply global settings, select video devices for archiving and view outstanding archiving operations.

The **Archive** menu has the following menu items:

- **Archives** - From here you can add, remove,enable or disable archiving destinations connected to the NVR.
- **Settings** - From here you can configure global archive settings for each archive destination, you can also configure the periods of availability where the NVR can write to the archive destination.
- **Archive Scheduler** - From here you can create Archive Groups and Schedules which define which video is to be automatically archived.
- **Device List** - From here you can enable/disable which video devices are to archive video. You can also define the archiving quality and maximum retention period of the archived video.
- **Jobs** - From here you can view a list of all outstanding archiving operations. You can also delete outstanding archiving jobs you no longer want to occur.

Overview of Archiving

Archiving is a server side function which utilizes the NVR's network bandwidth, disk I/O and CPU resources which will need to be taken into account during installation and operation. The NVR can only archive video, audio can not be archived.

Archiving of video can either be carried out manually or automatically. Manual archiving can be initiated using victor unified client, the selected video is immediately written to the archive. A journal entry is created on completion stating whether the archiving task was successful.

Note:
If errors are returned as a result of a manual archive requests, they only relate to issues that were detected during the queuing of the request.

Automatic archiving is configured using the NVR Administration Interface and allows you to archive video from selected cameras during scheduled times of the day. Scheduling times are set in one hour periods throughout the day, Monday through to Sunday. Video is written to the archive in defined periods of archive availability allowing you to manage CPU load on your NVR. Should archiving fall behind an alarm is generated.

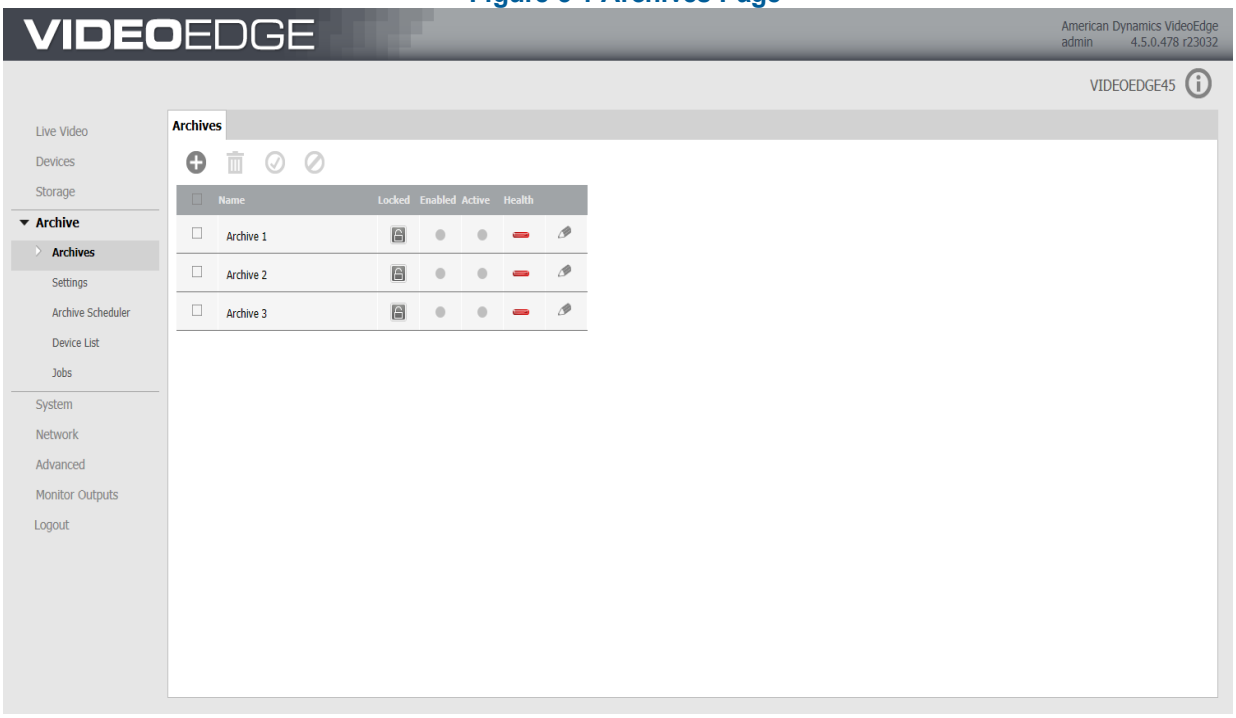
Video is archived in a Common Internet File System or CIFS (also known as Server Message Block or SMB) file structure organized by camera and date and written in an open format allowing playback in 3rd party media players. Additional configuration data such as credentials, domain and server IP Addresses are entered using the NVR Administration Interface.

Archives

Archive Destinations

Adding an Archiving destination is carried out using the Archive menu item in the NVR Administration Interface. Multiple Archive Destinations can be added to the NVR. When an Archive Destination is added it is listed in the Archives Table.

Figure 5-1 Archives Page



The NVR will write to the selected Archive Destination only. Archive Destinations can be assigned one of three states:

- **Locked** - The NVR will not modify any of the data on the destination either by culling or writing new data.
- **Unlocked and not the active destination** - The NVR will cull data based on retention rules but will not write any new data.
- **Unlocked and the active destination** - Only one destination can be enabled and active, the NVR will cull data and write new archive data to this destination.

Note:
For installation and user instructions when using a dedicated NAS device refer to its Installation and User Manual.

Procedure 5-1
Adding an Archive Destination

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays

3 Click **Add Archive**.

The Archive Details form opens.

4 Enter the **Archive Name**.

5 Enter the **Network Path**.

Note:
The Network Path consists of either a device hostname when DNS is in use or an IP address when it is not. For example:

1. With DNS and a shared folder named **NvrShare** - \\Hostname\NvrShare\
2. With no DNS and a shared folder named **NvrShare** - \\0.0.0.0\NvrShare\

6 (Optional) Enter the **Domain**.

7 Enter the **Username** required to access the shared directory on the Archive Destination.

8 Enter the **Password** required to access the shared directory on the Archive Destination.

9 (Optional) Select the **Locked** checkbox to make the destination read only.

10 (Optional) Click **Test Connectivity** to check the destination is correctly configured.

11 (Optional) Select the **Enabled** checkbox to enable the destination as the active archive.

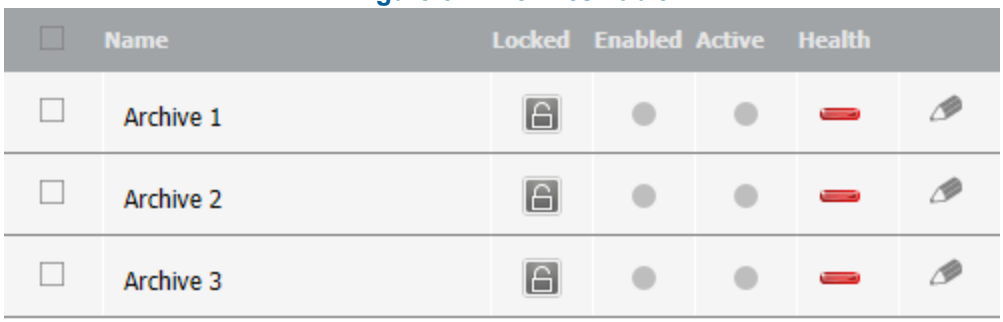
12 Click **Add**.

- End -

Editing Settings in the Archives Table

Archive Destination settings can be edited in the Archives Table; these include Archive name, destination and lock status on the Archive Configure Page.

Figure 5-2 Archives Table



Procedure 5-2
Renaming an Archive in the Archives Table

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays.
3	Click **Rename** in the name cell of the archive you want to rename.
4	Enter the new name in the **Name** field.

5	Click **Save**.

- End -

Procedure 5-3
Editing the Archive Destination Details in the Archives Table

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays.
3	Select . The Archive Details form opens.
4	Edit the **Archive Name** in the Name field.
5	Edit the **Network Path** in the Network Path field.
6	(Optional) Edit the **Domain** in the Domain field.
7	Edit the **Username** required to access the shared directory on the Archive Destination.
8	Enter the **Password** required to access the shared directory on the Archive Destination.
9	(Optional) Select the **Locked** checkbox to make the destination read only.
10	(Optional) Click **Test Connectivity** to check the destination is correctly configured.
11	(Optional) Select the **Enabled** checkbox to enable the destination as the active archive.
12	Click **Apply**.

- End -

Locked and Unlocked Archives

Archive Destinations can be locked or unlocked. When an archive is locked it is read only and can only be used to retrieve archived video.

Procedure 5-4
Locking Archives in the Archives Table

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays.
3	Select . A dialog box opens notifying that 'This will Lock the destination named: xxxx'
4	Click **OK**.

- End -

Procedure 5-5
Unlocking Archives in the Archives Table

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays.
3	Select . A dialog box opens notifying that 'This will unlock the destination named: xxxx'
4	Click **OK**.

- End -

Enabling/Disabling an Archive Destination

An Archive Destination can be selected as the active destination by enabling it. Alternatively an Archive Destination can be deselected as the active destination by disabling it.

Procedure 5-6
Enabling an Archive Destination

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays.
3	Select the checkbox in the Archives Table for the destination you want to enable.
4	Click **Enable Archive(s)**.

- End -

Procedure 5-7
Disabling an Archive Destination

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archives**. The Archives tab displays.
3	Select the checkbox in the Archives Table for the destination you want to disable.
4	Click **Disable Archive(s).**

- End -

Manually Archiving Video

Video can be manually selected for archiving using victor unified client. When video is archived manually it will be immediately written to the active Archive Destination.

You can view the status of the archive requests using the NVR Administration Interface and a journal entry is created on completion stating if the archiving task was successful.

For further information on manually archiving video refer to the victor unified client User Guide.

Retrieving Archived Video Using victor unified client

Archived video can be retrieved using victor unified client. For more information refer to the victor unified client User Guide.

Viewing Archived Video in a 3rd Party Media Player

Archived Video is saved in an MP4 format. Archive video can be viewed by a 3rd Party Media Player.

Video is archived in a user interpretable fashion; for example when a CIFS destination is used for archiving, the folder structure will contain folders for camera, year, month, day and so on with the relevant MP4 files contained within. The folders can then be navigated to find the required archived video file for playback with a 3rd party application.

Note:
3rd Party Media Players are unable to validate video.

Procedure 5-8
Viewing Archive Video in a 3rd Party Media Player

Step	Action
1	Navigate to the required MP4 file in the archive folder structure.
2	Right click on the MP4 file and select Open with.
3	Select the 3rd Part Media Player from the list.

- End -

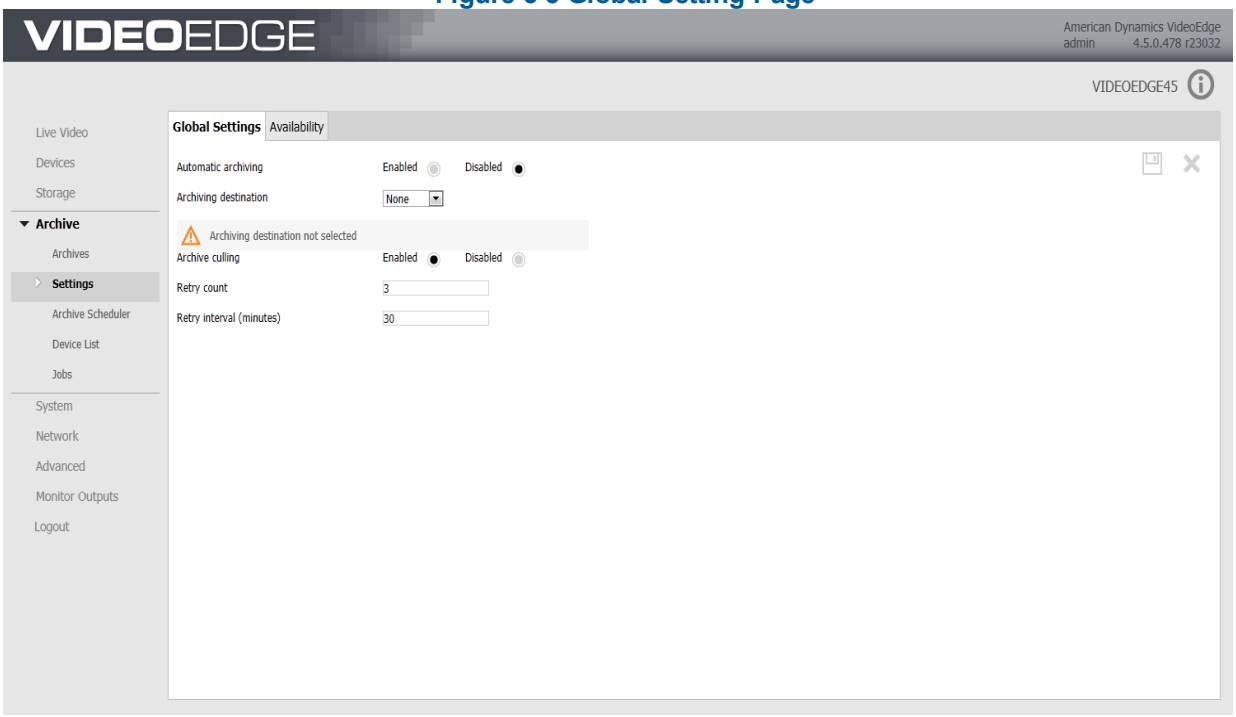
Settings

Global Settings

Global settings are available on the Settings menu item in the Archives menu. Global settings allow you to quickly enable/disable automatic archiving, the active Archive Destination and FIFO archive culling.

Note:
FIFO (First In, First Out) archive culling is a basic form or data culling which will cull data based on the date it was written to the archive, i.e. the oldest data is culled. Archive culling can also be configured based on retention rules.

Figure 5-3 Global Setting Page



You can also configure a retry count and retry interval which dictates the NVR's behavior should archiving be unsuccessful due to a loss of connection with the archive, the archive becoming unreadable, or the destination being full and culling is disabled.

For example if a retry count of 2 is applied with 30 minute intervals, when the NVR attempts to archive the clip and a failure to write occurs the system will wait 30 minutes and then re-attempt to write the data. After the second failure to write the system will not try again. In this instance you will have to manually archive the data.

Procedure 5-9
Applying System Wide Settings

Step	Action
1	Select **Archive** from the main menu.
2	Select **Settings**. The Global Settings tab displays.
3	Click the **Enabled** option button to enable Automatic Archiving.

Or

Click the **Disabled** option button to disable Automatic Archiving.

4 Select the **Archive Destination** from the Archive Destination dropdown.

5 Click the **Enabled** option button to enable Archive culling.

Or

Click the **Disabled** option button to disable Archive culling.

6 Enter a **value for the Retry count** in the Retry count field.

7 Enter a **value for the Retry interval** in the Retry interval field.

8 Click **Apply**.

- End -

Availability

Archive availability schedules are user configured times when the NVR can archive video. This can be used to minimize the effect of archiving on the NVR's network bandwidth, disk I/O and CPU resources by scheduling archiving when minimal activity is expected.

Procedure 5-10
Configuring an Archive Availability Schedule

Step	Action

1 Select **Archive** from the main menu.

2 Select **Settings**.

The Global Settings tab displays.

3 Select the **Availability** tab.

4 Select the **Availability schedule Enabled** option button.

A dialog box opens stating 'This will enable the availability scheduler. Select OK to continue'.

Click **OK**.

Note:
When the Availability schedule is disabled, archiving will not be restricted when automatic archiving is configured, i.e. the NVR will write to the archive 24 hours a day.

5 To allocate defined time windows of archive availability:

a Select the Archiving availability **Available** option button to assign availability

Or

Select the **Not Available** option button to remove availability.

b Select individual cells to assign/remove availability.

Or

c Select the row heading to assign/remove availability for an entire day.

Or

d Select the column heading to assign/remove availability to the same hour for every day of the week.

Or

e Press and hold the left mouse button, then draw a region around specific time slots to assign/remove availability.

6 Click **Save**.

- End -

Archiving Quality (Framerate Decimation)

Archiving Quality is defined as a percentage of applied Framerate Decimation. You can use Framerate Decimation to reduce the amount of data which is archived. This is achieved by reducing the framerate of the video being archived, for example by applying a Archiving Quality of 50% you are reducing the framerate by 50%. Framerate decimation does not have any effect on the video's resolution.

Archiving quality can be applied in 10% intervals where 10% provides the lowest quality video and 100% provides the highest quality video for archiving.

Note:
This function may have limitations based on codec, for example H.264 and MPEG-4 only support decimation at key frame level

Procedure 5-11
Configuring the Archiving Quality

Step	Action
1	Select **Devices**.
2	Select **List**. The Device List page opens.
3	Click in the device record you want to edit.
4	Select the **Archive** tab.
5	Select the **Archiving Quality** from the dropdown.
6	Click **Apply**.

- End -

Archive Management

Archive management is achieved either manually using victor unified client or automatically by configuring the NVR to automatically remove video based on retention rules.

When manually managing an archive you select time ranges of media through the victor unified client to remove. If you do not manage the archive sufficiently alarms will be generated when storage is no longer available for archiving to occur.

When you configure the NVR to automatically manage an archive, video will be removed as per its retention period or culling will occur when the archive storage is full, similar to the management of video on local storage.

The ability to automatically remove video from the archive may be dependant on the capabilities of a specific Archive destination.

Caution

If you delete video from the archive outside of victor unified client or by using the tools provided by the NVR Administration Interface, the victor database may differ and list archived video which no longer exists.

Maximum Archiving Retention Period

You can configure the NVR to cull archived data using a retention period. The NVR will cull data once it has exceeded the retention period.

Procedure 5-12
Enabling the Maximum Archiving Retention Period

Step	Action
1	Select **Devices**.
2	Select **List**. The Device List page opens.
3	Click in the device record you want to edit.
4	Select the **Archive** tab.
5	Click the **Enabled** Maximum Archiving Retention Period option button. The retention field displays.
6	Enter a retention period in the **Content will be removed after** field.
7	Click **Apply**.

- End -

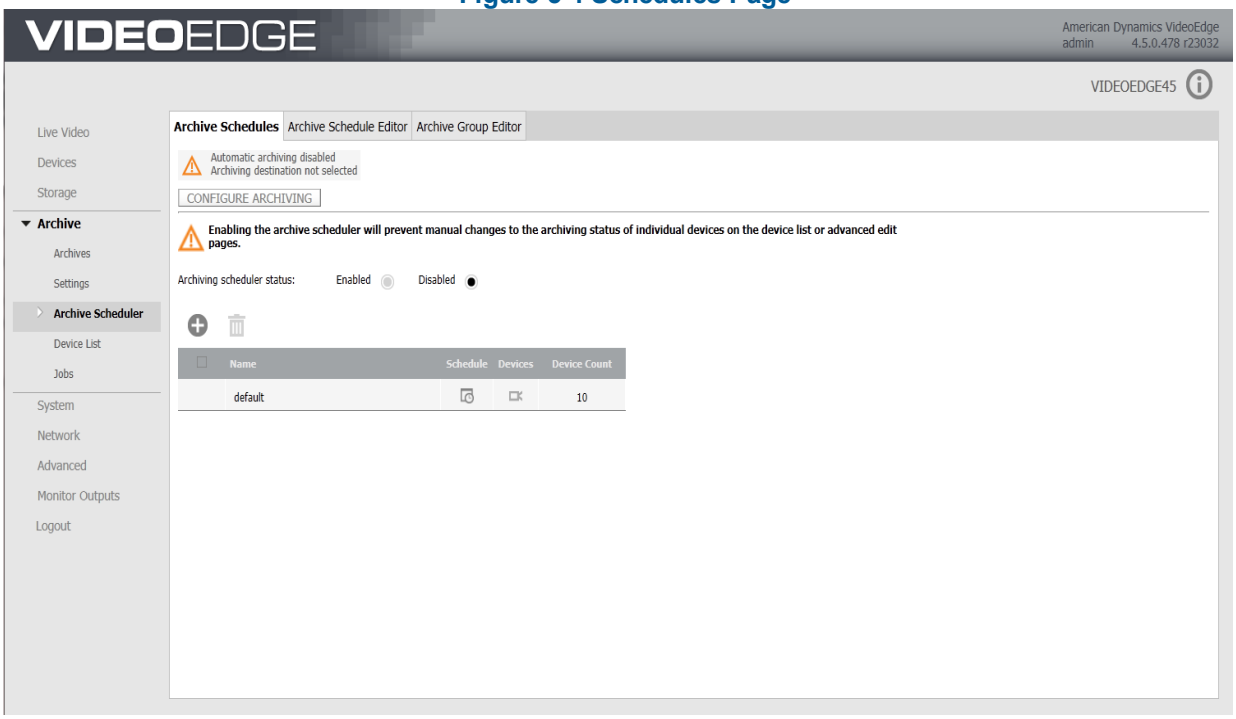
Archive Scheduler

The NVR can be configured for automatic archiving by utilizing the Archiving Scheduler. The Archiving Scheduler allows you to define time periods during which video is queued for archiving. This schedule is configured in the Archive Schedules tab.

Video which is queued for archiving will be transferred to the archive destination when the next period of archive availability in the Archive Availability Schedule is reached. This schedule is configured in the Archive Availability tab. Archive Schedules and Archiving Modes can be applied to reduce the amount of video which is archived.

Use the Schedules page to enable or disable the Archiving Scheduler. Archiving Schedules can be created and edited From the Archive Schedules page.

Figure 5-4 Schedules Page



Procedure 5-13
Enabling/Disabling the Archiving Scheduler

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archive Scheduler**. The Archive Schedules page displays.
3	To enable the Archiving Scheduler, click the **Enabled** option button. Or To disable the Archiving Scheduler, click the **Disabled** option button.

- End -

Procedure 5-14
Creating an Archiving Schedule

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archive Scheduler**.
	The Archive Schedules page displays.
3	Enter a name in the **Schedule Name** field.
4	Click **Create archiving schedule**.

- End -

Procedure 5-15
Renaming an Archive Schedule

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archive Scheduler**.
	The Archive Schedules page displays.
3	Click **Rename** next to the Archive Schedule name you want to edit.
4	Enter the new name in the text field.
5	Click **Save**.

- End -

Schedule Editor and Group Editor Pages

When you create an Archiving Schedule using the Archiving Scheduler, you need to assign cameras to that schedule, these cameras form a group. Groups can consist of an individual camera or groups of cameras. Each group can have scheduled times and archiving modes assigned for queuing video for archiving.

There are three archiving modes available in the Archiving Scheduler:

- Automatic archiving disabled
- Automatically archive all recorded video
- Archive only recorded alarm video.

You can assign multiple archiving modes to a group, only one mode can be selected at any one scheduled time. For example you can schedule a group to queue video for archiving by selecting the mode **Automatically archive all recorded video** between 09:00 to 18:00 Monday through to Friday, and schedule the same group to archive only recorded alarm video by selecting the mode **Archive only recorded alarm video** between 19:00-23:00 Monday through to Friday.

Procedure 5-16
Assigning Cameras to a Group

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archive Scheduler**. The Archive Schedules tab displays.
3	Select of the Archive Schedule you want to edit. The Archive Group Editor page displays.
4	To add cameras to a group: a Select the checkbox of the camera you want to add from the **All other devices** list. b Click . Or To remove cameras from a group: a Select the checkbox of the camera you want to remove from the **This group** list. b Click .
5	Click **Save**.

- End -

Procedure 5-17
Editing the Queuing Times of an Archive Schedule

Step	Action
1	Select **Archive** from the main menu.
2	Select **Archive Scheduler**. The Schedule tab displays.
3	Select of the Archive Schedule you want to edit. The Archive Schedule Editor tab displays.
4	To configure queuing times for archiving: a Select the **Automatic archiving disabled** option button to disable queuing for archiving during selected time increments. Or Select the **Automatically archive all recorded video** option button to queue for archiving all video during selected time increments. Or Select the **Archive only recorded alarm video** option button to queue for archiving all video recorded under alarm conditions during selected time increments. b Select individual cells to assign/remove availability.

Or

c Select the row heading to assign/remove availability for an entire day.

Or

d Select the column heading to assign/remove availability to a time slot for an entire week.

Or

e Select **All Week** to assign/remove availability to all time slots within a week.

Or

f Press and hold the left mouse button, then draw a region around specific time slots to assign/remove availability.

5 Click **Save**.

- End -

Device List

The Device List menu item displays a list of all devices which have been added and have recorded video on the NVR's memory. Devices which have been deleted will remain on the device list until all their remaining video has been culled from the NVR's memory.

You can batch edit the Archiving Mode, Archiving Quality and Maximum Archiving Retention Period for the video devices found in the Archiving Device List.

Procedure 5-18
Batch Editing Archive Settings using the Device List sub menu

Step	Action
1	Select **Archive** from the main menu.
2	Select **Device List**. The Video List tab displays.
3	Select the checkbox(es) of the camera(s) you want to edit.
4	Click **Batch Edit Device(s)**. The Batch Edit tab displays.
5	Select the checkbox followed by the required **Archiving Mode** option button: • **Archiving disabled** • **Archive all video** • **Archive only alarm video**
6	Select the checkbox followed by the required **Archiving Quality** setting from the dropdown.
7	Select the checkbox followed by the required **Maximum Archiving Retention Period** from the dropdown.
8	Click **Apply**.

- End -

Jobs

The Jobs page lists all outstanding queued archiving tasks.

Viewing and Deleting Manual Archiving Tasks

You can view current manual archiving tasks in the Jobs page. Tasks which you no longer wish to have carried out can be deleted.

Procedure 5-19
Viewing/Deleting Current Manual Archiving Tasks

Step	Action
1	Select **Archive** from the main menu.
2	Select **Jobs**.
	The Job tab displays.
3	(Optional) Select the checkbox(es) next to the tasks you want to delete.
4	Click **Delete archive job(s)**.

- End -

System Menu Overview

The **System** Menu allows you to configure the NVR's basic system settings; Users and Roles, Licensing, Template files, Backup/Restore, software updates, Serial Protocols and the NVR's Security Configuration.

The **System** menu has the following menu items;

- **General** - From here you can edit the Hostname, Location, Date & Time and Language. You can also download the public key.
- **Users and Roles** - From here you can create new user accounts, edit existing accounts, apply lockout polices and auto logout. Lockout and logout polices are OFF by default.
- **Licensing** - From here you can apply a license file to your NVR, configure Software Service Agreement notifications and generate your NVR's Host ID.
- **Templates** - From here you can create a Template file or alternatively load a Template file.
- **Backup/Restore** - From here you can create a Backup file or alternatively restore an NVR from a Backup file.
- **Update Software** - From here you can apply Software and Camera Handler updates.
- **Security Configuration** - From here you can edit the web server configuration, Certificate settings and Remote Access settings. Enhanced security configuration is OFF by default.

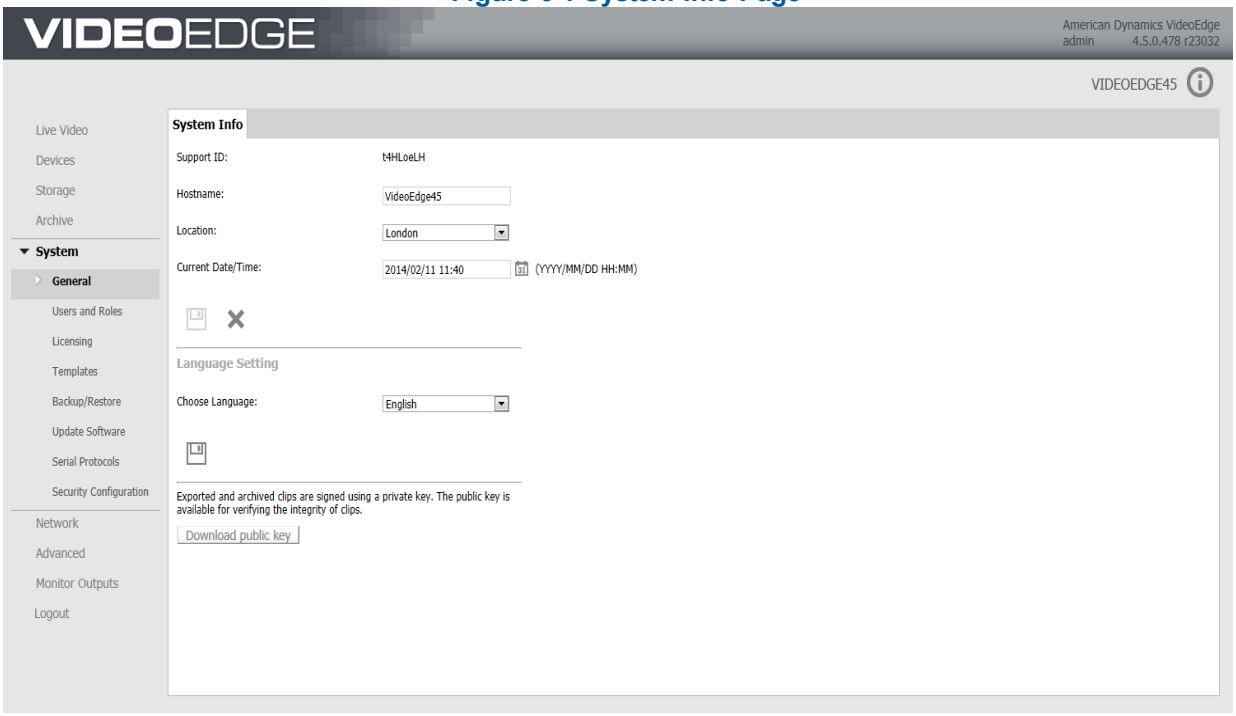
General

The General System Information page allows you to edit the hostname, i.e. the name assigned to the NVR, the location, date and time, selected language and download the public key.

For playback to work reliably it is imperative that the time between the client and the NVR is synchronized. This is best achieved using an NTP server to synchronize the time on both the client and the NVR.

Note:
The same NTP server should be used to synchronized the time settings on both the client and the NVR. This can be achieved using a NTP server on the internet or by configuring an NVR to act as a NTP server.

Figure 6-1 System Info Page



Hostname

The Hostname of the NVR can be changed. This provides you the ability to use a bespoke hostname to identify multiple NVRs on a network and in victor client. When the hostname of an NVR is changed it will automatically change in the device list within victor client.

Procedure 6-1
Editing the Hostname

Step	Action
1	Select **System** from the main menu.
2	Select **General**. The System Info tab displays.
3	To edit the **Hostname** select the current value. Update the Hostname as required. The field background changes to yellow indicating a change has been made.

4	Click .
	A confirmation message displays.

- End -

Location

The location of the NVR can be defined. A dropdown list provides a list of cities for you to choose from. If the current location of the NVR is not included in the list, it is recommended that you select the nearest city available.

Note:
When using an NTP Server the location is used to define the time and date as NTP servers use UTC time.

Procedure 6-2
Editing the Location

Step	Action
1	Select **System** from the main menu.
2	Select **General**.
	The System Info tab displays.
3	To edit the **Location** select the city of the NVR or nearest city listed from the dropdown.
	The dropdown background changes to yellow indicating a change has been made.
4	Click .
	A confirmation message displays.

- End -

Current Date and Time

The current date and time on an NVR can be manually edited. When using an NTP Server the Time will be synchronized with the server.

Note:
When using a NTP Server the location is used to define the time and date as NTP servers uses UTC time.

Caution

It is critical that you configure the correct Location and Current Date/Time to ensure the VideoEdge NVR is fully operational on completion of the setup wizard and to ensure recorded media has the correct timestamp.

Procedure 6-3
Editing the Current Date and Time

Step	Action
1	Select **System** from the main menu.
2	Select **General**.
	The System Info tab displays.

3 To edit the **Current Date** and **Time**, select the current value. Update the Current Date and time as required, enter the date in the field in the following format; **YYYY/MM/DD** for example 2012/01/01.

Or

a Select .

The Calender opens.

b Select the date from the calendar.

The field background changes to yellow indicating a change has been made.

4 Enter the time in hours and minutes after the date.

You can also use the sliders to adjust the time.

Note:
Time must be entered in 24 hour format.

5 Click .

A confirmation message displays.

- End -

Language Setting

The displayed language of the NVR Administration Interface can be changed using the System Info page.

Procedure 6-4
Changing the Selected Language

Step	Action
1	Select **System** from the main menu.
2	Select **General**. The System Info page opens.
3	Select the required language from the **Choose Language** dropdown.
4	Click .

- End -

Downloading the Public Key

Each NVR has a unique public key which can be downloaded from the System Info page. The public key is used for clip verification using either victor player or victor unified client.

Note:
Verification using the NVR's public key can only be carried out on exported packages, i.e. the zip container with its corresponding ExportInfo.Xml.

Procedure 6-5
Downloading the NVR's Public Key

Step	Action
1	Select **System** from the main menu.
2	Select **General**.
	The System Info page opens.
3	Click **Download public key**.
	A Windows dialog box opens.
4	Click **Save**.
	The public key is saved as a PEM File and can be viewed using Windows Notepad.

- End -

Users and Roles

You can create customizable user credentials for each of your NVR's users. Each user credential can be assigned a role type which denotes it's permissions and lockout options.

Caution

For improved security, you are strongly advised to change the account passwords, configure appropriate lockout settings and enable auto logout.

Users

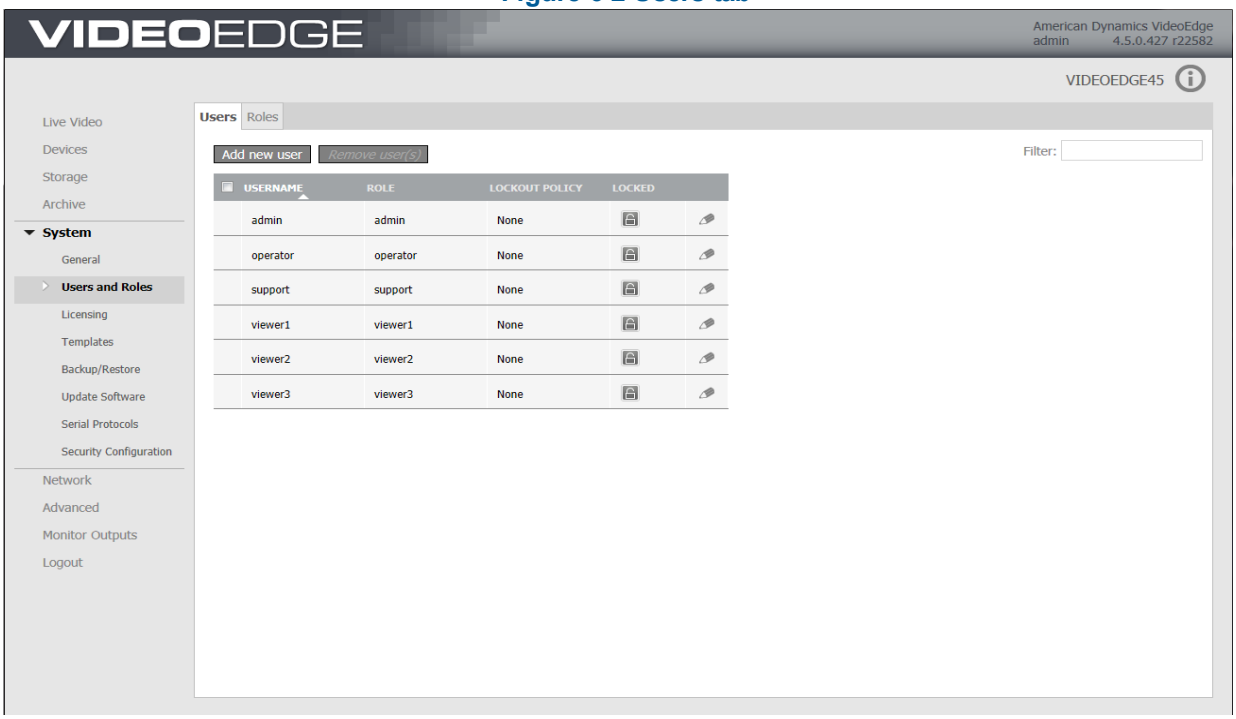
The Users tab allows you to create, edit and delete user credentials for custom users and edit the passwords for the six default users i.e. admin, operator, support,viewer1, viewer2 and viewer3. The default users cannot be deleted.

New users can be clicking **Add New User**. You can assign a bespoke username and password for a new user. The user's role can be selected from the **Role** dropdown list, the following options are available:

- **Admin** - Allows viewing and editing of the VideoEdge Administration Interface and full functionality of the VideoEdge Client. The default password for this role is **VIDEO!edge23**.
- **Operator** - Allows viewing of the VideoEdge Administration Interface and full functionality of the VideoEdge Client. The default password for this role is **VideoEdge**.
- **Support** - The support user role is solely for the use of American Dynamics Technical Support.

Note:
For systems which are not part of the VideoEdge Hybrid product range, user roles viewer1, viewer2 and viewer3 cannot be used when creating user credentials as they do not permit access to the NVR Administration Interface.

Figure 6-2 Users tab



Procedure 6-6
Add New User

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.
3	Click . The Add New User window opens.
4	Enter the user name in the **Username** field.
5	Enter the pas.sword in the **New Password** field.
6	Re-enter the password in the **Confirm Password** field. **Note:** When entering the user name and password note the use of upper and lowercase. The user will be required to enter their user name and password as it has been entered at this stage.
7	Select the role from the **Role** dropdown.
8	Click .

- End -

Reset a Password

User accounts with admin privileges can reset the password of user accounts which have been created using the Add New User button.

Note:
You do not need to know the current password to complete this function.

Procedure 6-7
Reset a Password

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.
3	Select beside the User name you want to edit the password for. The edit window opens.
4	Select the **Reset Password** checkbox.
5	Enter the new password in the **New Password** field. **Note:** It is good practice to choose a password consisting of a combination of upper case letters, lower case letters, numbers and special characters.
6	Confirm the new password by entering it in the **Confirm Password** field.
7	(Optional) Select a new role from the **Role** dropdown.
8	Click .

- End -

Changing the Default Role Passwords

The passwords for the operator, viewer1, viewer2 and viewer3 roles cannot be reset, the password can however be changed by a user with admin privileges.

Procedure 6-8
Changing the Default Role Passwords

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.
3	Select beside the User name you want to edit the password for. The edit window opens.
4	Enter the new password in the **New Password** field.

Note:
It is good practice to choose a password consisting of a combination of upper case letters, lower case letters, numbers and special characters.

5 Confirm the new password by entering it in the **Confirm Password** text box.

6 Click .

- End -

Remove a User

User accounts with admin privileges can remove user accounts which have been created using the **Remove User(s)** button.

Procedure 6-9 Remove a User

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.
3	Select the checkbox(es) next to the users you wish to remove.
4	Click . A dialog box opens.
5	Click **OK**.

- End -

Roles

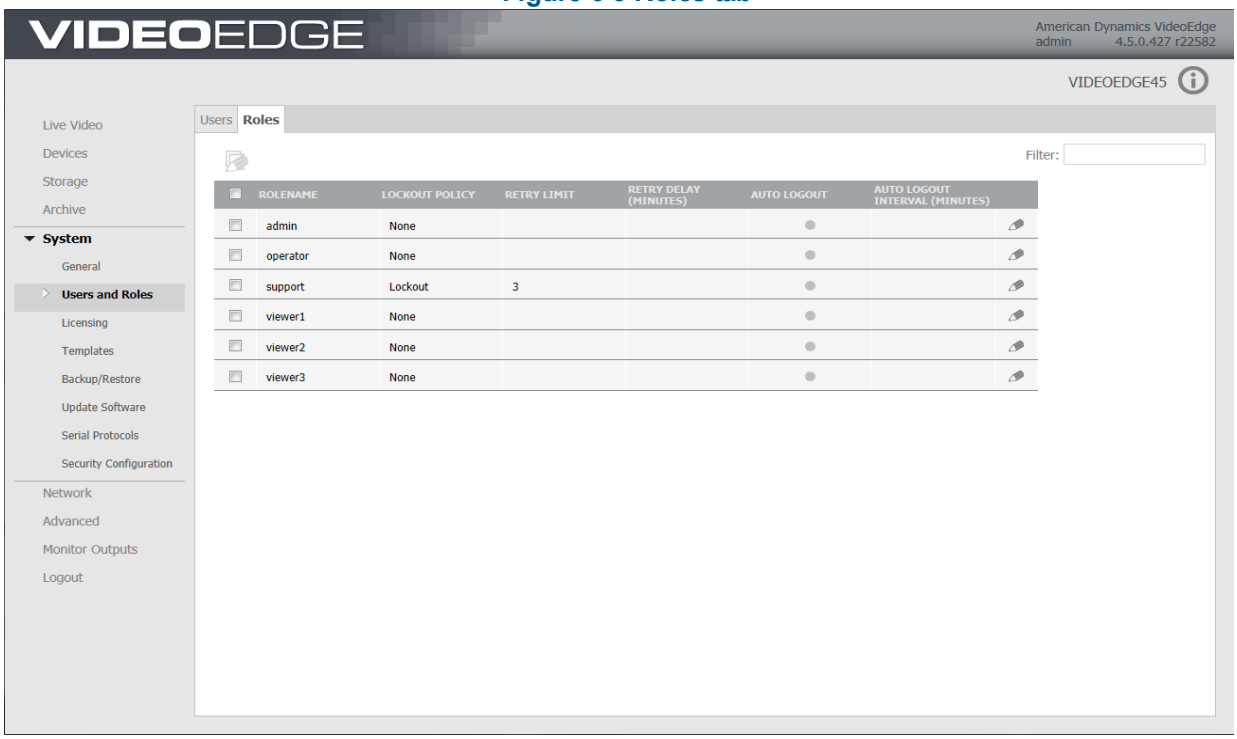
The Roles page allows you to configure a Lockout Policy and Auto Logout for each user role. Once these settings have been applied to a user role, it will be applied to all user accounts which have been assigned that user role.

Note:
It is recommended that you do not configure all the NVR's roles with lockout enabled. If the passwords for each of the accounts where to become unknown, access to the NVR Administration Interface could be lost.

There are three Lockout Polices available for use; None, Lockout and Delay. When Lockout is enabled the user will be locked out of the account should they incorrectly enter the account password consecutively a set number of times. Alternatively when Delay is enabled the user will only be unable to access their user account for a configurable period of time should they incorrectly enter the account password a set number of times.

Note:
All roles are set to None by default meaning they have no Lockout Policy configured.

Figure 6-3 Roles tab



Editing the Lockout Policy and enabling Auto Logout

The Lockout Policy for the default user roles can be edited at any time using the Roles page. You can also enable auto logout for each role.

Procedure 6-10
Editing the Lockout Policy and Auto Logout

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.
3	Select the **Roles** tab. The Roles tab displays.
4	Select in the user role you want to edit.
5	Select **Lockout** from the Lockout Policy dropdown. Enter the number of failed password attempts in the **Retry Limit** field that are required for the account to lockout. (Minimum 1, maximum 50) Or Select **Delay** from the Lockout Policy dropdown. Enter the number of failed password attempts in the **Retry Limit** field that are required to initiate a delay before the user can re-attempt to enter their credentials.

	Enter the number of minutes in the **Retry Delay** that are to pass before the user can re-attempt to enter their credentials. (Minimum 1, maximum 4320)
6	(Optional) Select the **Enable Auto Logout** checkbox.
7	(Optional) Enter the **Auto Logout Interval (minutes)** in the field. (Minimum 5, maximum 60)
8	Click .

- End -

Locked Accounts

When an account is locked, the user can no longer access the NVR Administration Interface (Provided this function is permitted by their configured role). The NVR's Lockout Policies also apply to the VideoEdge Client and victor unified client.

Note:
Accounts cannot be manually locked.

Should an account be locked or delayed, you will be unable to access the VideoEdge Client or access the NVR Administration Interface through victor unified client. A locked account can quickly be identified using the Users table in the Users page, locked accounts are indicated by a white padlock symbol.

Accounts can be unlocked by a user with either the admin or support role assigned to their account. Accounts can be unlocked directly from the Users table or by using the edit icon located with each table entry in the Users page.

Note:
User accounts which have been assigned the admin or support role can only be unlocked by other users with either the admin or support role assigned.

Procedure 6-11
Unlocking Accounts from the Users Table

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.
3	Select in the user credential row you want to unlock. A dialog window opens stating 'This will unlock the account named: xxxx'
4	Click **OK**.

- End -

Procedure 6-12
Unlocking Accounts using the Edit Icon

Step	Action
1	Select **System** from the main menu.
2	Select **Users and Roles**. The Users tab displays.

3 Select **Edit** in the user credential row you want to unlock.

4 (Optional) Select the **Reset Password** checkbox when logged in as an admin or support user to create a new password for the locked user account.

The New Password and Confirm Password fields display for completion

Note:
You are not required to know the current password to assign a new password or unlock the account.

5 Select the **Unlock Account** checkbox to unlock the account.

6 (Optional) Select the **Role** from the dropdown if you want to assign a new role to the account.

7 Click **Apply**.

- End -

Licensing

The NVR is supplied with a 60 day trial license, the following topic details how to request a bespoke license from your American Dynamics sales team.

Note:
1. The NVR software has a 60-day trial period with a maximum of 128 camera license (16 analytic cameras).

2. American Dynamics cameras do not require licensing, when you generate your host ID this is taken into account and will alter your licensing costs.

3. If you do not purchase a license by the end of the trial period, the camera and storage functions are automatically disabled.

To apply a license, use the Licensing page in the NVR Administration interface. From here you can Generate a Host ID, Apply a License, edit the Software Service Agreement (SSA) message, add/edit SSA Contacts and add/edit the SMTP Server.

The Licensing Status section provides a summary of the license type, the number of cameras that are licensed on the NVR, the number of cameras with analytics that are licensed on the NVR and the time remaining on the current license.

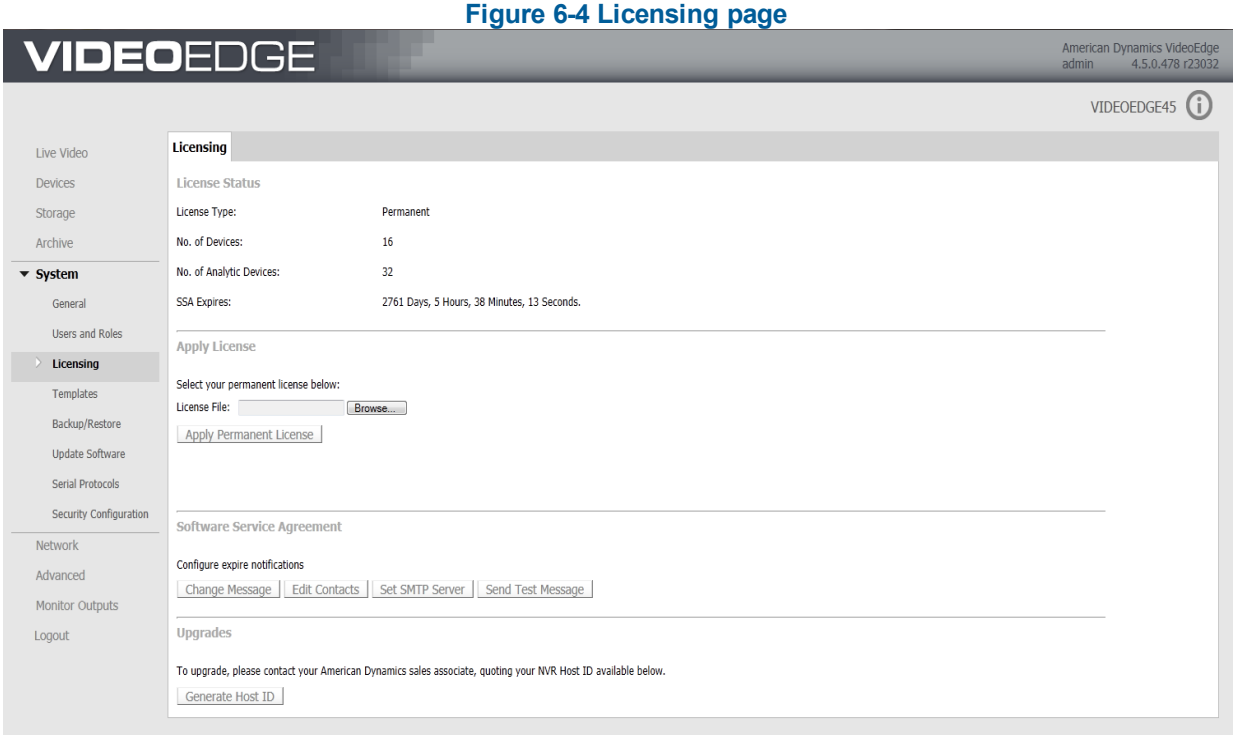
A license is generated based on the number of devices attached to the NVR. This can be either a camera or a camera encoder with multiple analog cameras attached. A license generated for one NVR cannot be used with another NVR, however, you can replace cameras and devices on the NVR without requiring a license change.

To license the NVR you must generate a Host ID specific to your NVR and enter the ID on the online registration page. This can be accessed using the VideoEdge Licensing Activation Icon on the NVR Desktop or via the American Dynamics website. Once you receive the license file you can then apply the permanent license to your NVR.

The NVR has optional licensable features consisting of:

- Additional cameras (beyond IP camera licenses included with base software)
- Analytics channels

Figure 6-4 Licensing page



Licensing the NVR

This section details the procedures involved in licensing the NVR.

Generate a Host ID

When it is time to renew your NVR License or upgrade your software the Generate Host ID tool is used to generate a Host ID specific to your NVR which should be entered on the VideoEdge registration page on the American Dynamics website. The website can be accessed via the VideoEdge Licensing Activation Icon on the NVR Desktop or by going to the following address:

http://www.americandynamics.net/SoftwareRegistration/AutoRegistration/VideoEdgeAutoRegistrationForm.aspx

Note:
Before you generate the NVR Host ID, you must ensure that all NIC's intended to be used with the NVR, for example, a Client LAN, Camera LANs or a Storage LANs, are already installed on the server.

Procedure 6-13
Generate a Host ID

Step	Action
1	Select **System** from the main menu.
2	Select **Licensing**. The Licensing tab displays.
3	Click **Generate Host ID** in the Upgrades section. A file download window opens.

4	Click **Open** to view the Host ID. Alternatively you can click **Save** to save the Host ID to your chosen location.

- End -

Apply a Software License

After you have received your software license from the American Dynamics website, you can apply your permanent license.

Procedure 6-14
Applying a License

Step	Action
1	Select **System**.
2	Select **Licensing**. The Licensing tab displays.
3	In the **Apply License** section, click **Browse**.
4	Locate the license file and click **Open**. The filepath is displayed in the **License File** field.
5	Click **Apply Permanent License**.

- End -

Software Service Agreement Notifications

The Software Service Agreement (SSA) page allows you to configure a message to alert you when the license is close to expiry. You can add/edit contact email addresses to receive the SSA expiry message and edit the SMTP Server. You can also send a test email message to confirm the settings entered are correct.

Note:
To be able to use SSA notifications you must ensure that your NVR is configured with a valid Domain Name and Default Gateway.

Edit the SSA Message

You can edit the SSA message that is sent to you when the NVR license is close to expiry.

Procedure 6-15
Edit the SSA Message

Step	Action
1	Select **System** from the main menu.
2	Select **Licensing**. The Licensing tab displays.
3	In the **Software Service Agreement** section, click **Change Message**. The SSA Expire Message editing window opens.

4	To edit the message subject, enter the desired text in the **Subject** field.
5	To edit the message body, enter the desired text in the **Message** field.
6	Click **Submit**.

- End -

Edit SSA Contacts

The SSA contacts, are those who will receive the SSA message to alert them when the NVR license is about to expire. To receive the message you must add at least one contact's email address to the contacts list. You can add and remove contacts to/from the contact list when required.

Procedure 6-16
Edit SSA Contacts

Step	Action
1	Select **System** from the main menu.
2	Select **Licensing**. The Licensing tab displays.
3	In the **Software Service Agreement** section, click **Edit Contacts**. The SSA Contacts editing window opens.
4	To add a contact, enter their email address in the **Add Email** field.
5	Click **Add**. The email address is added to the contacts list.
6	(Optional) To add additional contacts to the contacts list repeat Steps 4 and 5.
7	To remove an email address from the contact list, click **Remove** next to the Email address to be removed. The contacts's email address is no longer in the contacts list.

- End -

Set the SMTP Server Address

You can set your email SMTP server from the licencing page. There is one SMTP server assigned to the NVR, if you change the server address here, it is the same as changing it through the Email Alerts page.

Procedure 6-17
Setting the SMTP Server Address

Step	Action
1	Select **System** from the main menu.
2	Select **Licensing**. The Licensing tab displays.
3	In the Software Service Agreement section, click **Set SMTP Server**. The SMTP Server editing window opens.
4	Enter the IP Address into the **SMTP Server** field.

5 Click **Submit**.

Note:
The SMTP Server address is the same as the address entered in the Email Alerts page, and therefore can also be changed from here.

- End -

Send an SSA Test Message

When you have configured the SSA settings, you can send a test message to the contacts on the SSA contacts list.

Procedure 6-18
Sending an SSA Test Message

Step	Action
1	Select **System** from the main menu.
2	Select **Licensing**. The Licensing tab displays.
3	Click **Send Test Message** in the Software Service Agreement section. A test message is sent to the mailbox of those on the contacts list.
4	A message opens to confirm if the email has been sent or if it has failed. Click **OK**.

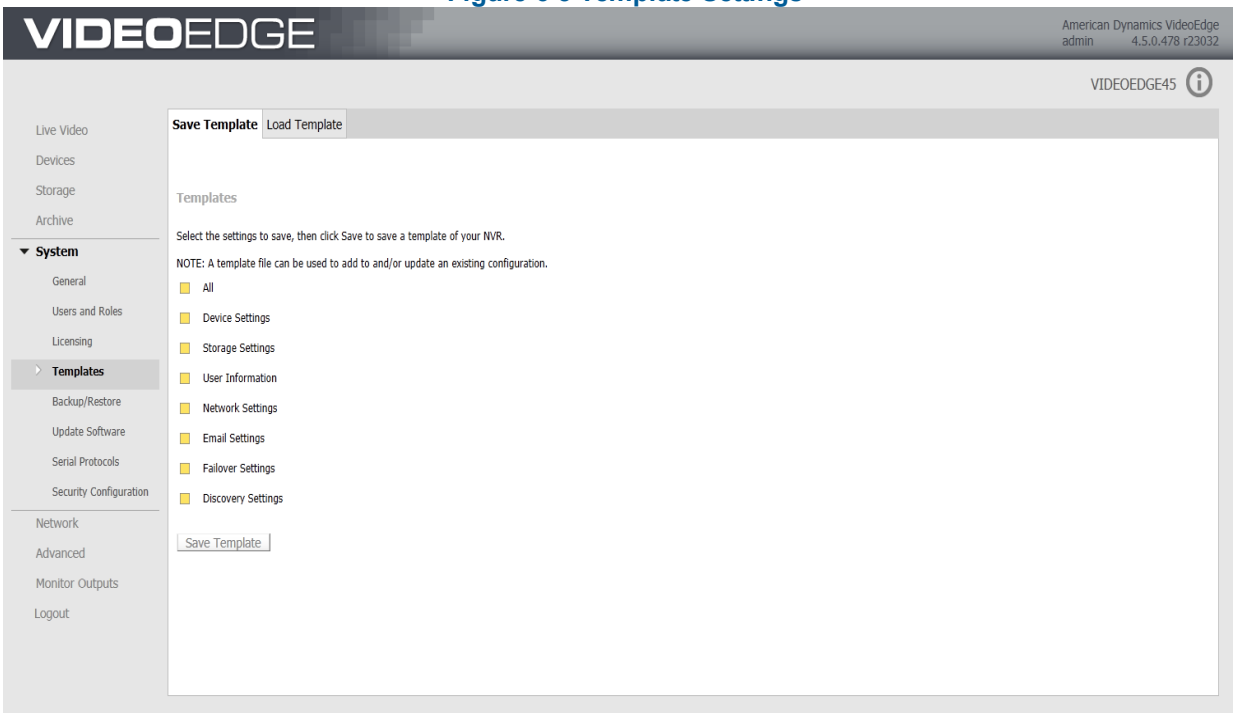
Note:
If the message has failed to send check your contact's email address(es) and the SMTP server address to confirm they are correct, and re-send.

- End -

Templates

With the NVR, you can save a server's configuration data to a template. You can import the template to another NVR and the configuration settings of the NVR will be configured according to the settings on the imported template. You can store a template file on a USB or local disk.

Figure 6-5 Template Settings



Save a Configuration Template

You can create a configuration template using the Templates functionality in the NVR interface. You can choose the type of configuration settings to be stored in the template. If you want to save camera configuration settings to a template you must ensure that those cameras are connected to the NVR before the template is created.

Procedure 6-19
Creating a Configuration Template

Step	Action
1	Select **System** from the main menu.
2	Select **Templates**. The Save Template tab displays.
3	Select the required checkboxes for the configuration settings that you want saved to the template: a All b Camera Settings c Storage Settings d User Information e Network Settings

f Email Settings

g Failover Settings

h Discovery Settings

4 Click **Save**.

5 Select **Save As**.

6 Navigate to the folder where you want to save the template.

7 Enter a **Filename** for the template and click **Save**.

Note:
A default template file name is given; this is made up of VideoEdgeNVRTemplate, followed by the NVR name and the date and time the template was created.
Example:
VideoEdgeNVRTemplate-ServerName-YYYY-MM-DDT00_00.xml
VideoEdgeNVRTemplate-linux-adnvr-2012-03-26T14_02.xml

- End -

Import a Template File

You can import NVR configuration settings saved as a template. When you are configuring a NVR for the first time, you can load a saved template file, which will configure the NVR with the settings in the file. When applying a template file to an NVR that is already configured, the settings on the NVR will update with the settings saved in the template file. If there are camera configuration settings in the template to be imported, the relevant cameras must be connected to the NVR.

Procedure 6-20
Importing a Template File

Step	Action
1	Select **System** from the main menu.
2	Select **Templates**.
	The Save Template tab displays.
3	Select the **Load Template** tab.
4	Click **Browse**.
5	Navigate to the template file you want to import.
6	Select the file and click **Open**.
	The filepath of the template file appears in the **Template File** field.
7	Click **Apply Template**.

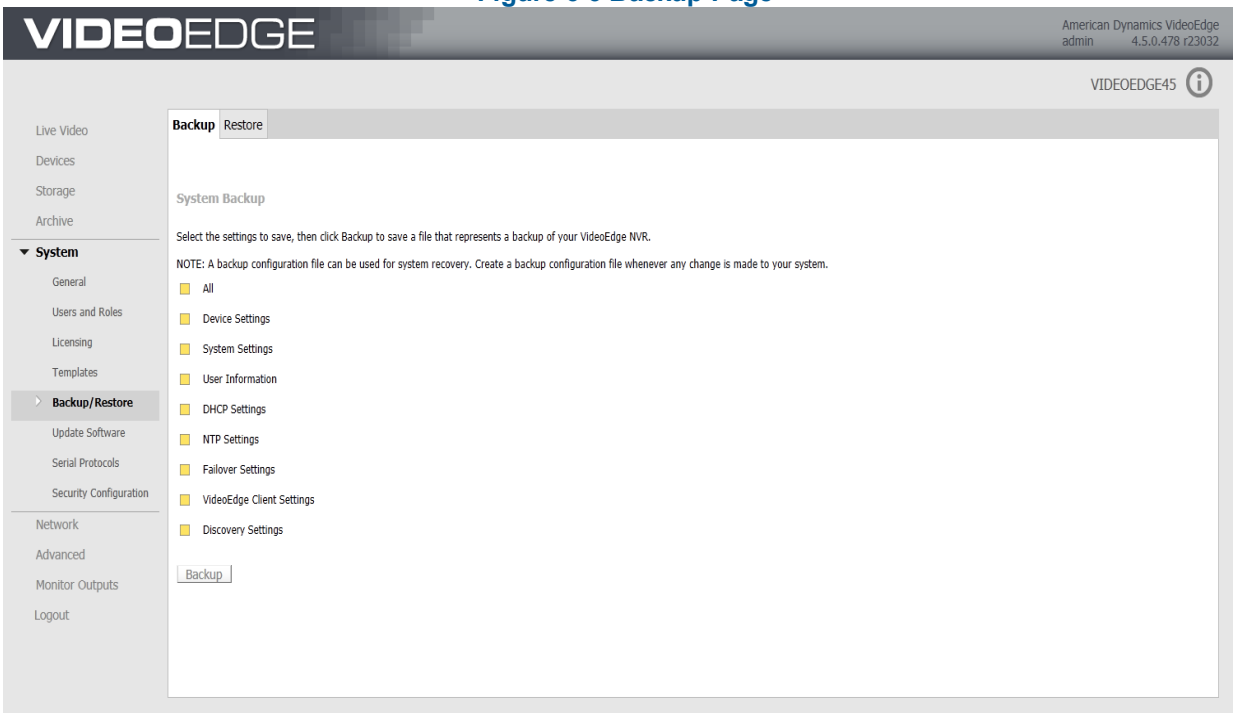
Note:
If any errors occur during the template import process, a summary of the errors are displayed.

- End -

Backup\Restore

With the NVR, you can recover a server's configuration data in the event of a system failure. A system backup file can be stored to a USB or local disk. The backup files can then be imported to the NVR where the saved configuration can be restored.

Figure 6-6 Backup Page



Create a Backup File

You can create a backup file using the Backup/Restore functionality in the NVR Administration Interface. You can choose the type of configuration settings to be stored in the backup file.

Note:
Operating System settings can not be stored in the configuration backup file. However, the system will also automatically export a text file containing the OS settings which can be used as reference for manually configuring the OS settings.

Procedure 6-21
Creating a Backup File

Step	Action
1	Select **System** from the main menu.
2	Select **Backup/Restore**. The Backup page opens.
3	Select the required checkboxes for the configuration settings that you want saved to the template in the Templates section: a All

b Device Settings

c System Settings

d User Information

e DHCP Settings

f NTP Settings

g Failover Settings

h VideoEdge Client Settings

i Discovery Settings

j System Security Settings

k Network Interface Settings

4 Click **Backup**.

5 Select **Save As**.

6 Navigate to the folder where you want to save the backup file.

Note:
To use the backup file during a system recovery procedure you must save the file to an external location, for example, a USB drive.

7 Enter a **File name** for the backup file and click **Save**.

Note:
A default backup file name is given; this is made up of VideoConfBackup, followed by the NVR name and the date and time the file was created.
Example:
VideoConfBackup-ServerName- yYYYY-mMM-dDD-h00-m00-s00_files.zip
VideoConfBackup-ServerName- y2012-m03-d26-h14-m02-s43_files.zip

- End -

Restore an NVR

System backup files contain NVR configuration information. The type of information contained in a particular file is dependent on the settings selected when the file was being created. When the backup file is applied, the NVR is restored as per the saved configurations.

Note:
1. Only a licenced server can be restored.

2. You cannot restore from a previously saved VideoEdge NVR 4.1 backup configuration file.

Caution

To maintain all configured Tours and Salvos relating to your NVR in victor unified client, you should complete the System Restore procedure before reconfiguring the NVR's LAN Interface Settings.

Procedure 6-22
Restoring an NVR from a Backup File

Step	Action
1	Select **System** from the main menu.
2	Select **Backup/Restore**.
	The Backup page opens.
3	Select the **Restore** tab.
4	Click **Browse**.
5	Navigate to the backup file you want to use, select the file and click **Open**.
	A message box opens, asking you if you want to recover any media that is part of storage being restored.
6	Click **Yes** if you want to recover media, otherwise click **No**.
7	A recovery progression bar opens and updates as the recovery progresses.
	If you are recovering media this may take a some time.
8	A message box opens informing you that the recovery is complete.
9	Click **OK**.
	Note: If you are restoring DHCP and/or NTP settings you need to restart your DHCP and/or NTP server.

- End -

Update Software

Software updates, patches and update camera handler packs can be applied to the NVR manually or using the Push Update feature of victor unified client.

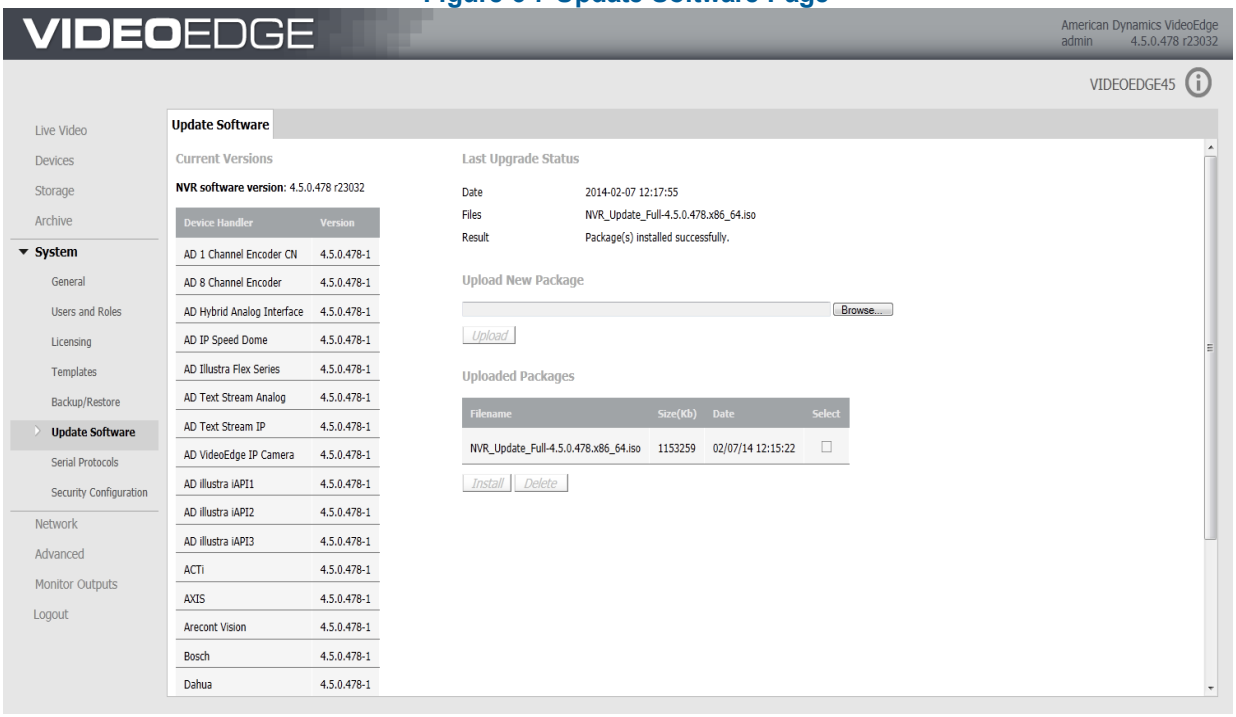
Push Updates

Software updates can be initiated by victor unified client using the Push Updates feature. The user will be required to have the appropriate permissions to carry out a Push Update. For further information refer to the victor unified client User Guide.

Applying Software Updates using the Administration Interface

You can apply software updates or patches to the NVR using the Update Software page. The current version of the software installed is displayed. To update the software you must upload a new software package and then install the update.

Figure 6-7 Update Software Page



Procedure 6-23 Update the NVR

Step	Action
1	Select **System** from the main menu.
2	Select **Update Software**. The Update Software page opens.
3	Click **Browse**.
4	Select the update or patch file and click **Open**.

The name and filepath of the patch file appears in the Upload New Package field.

5 Click **Upload**.

The uploaded package is displayed in the Uploaded Packages list.

6 Select the new package from the list and click **Install**.

- End -

Updating Camera Handler Packs

Existing camera handlers can be updated or new camera handler packs installed on the NVR, without the need to reload or reboot. Camera handlers can be installed using the Update Software page. The current camera pack version is displayed.

Caution

Recording and dry contact processing will be stopped for any camera using a handler that is being updated.

Procedure 6-24
Updating a Camera Handler Pack

Step	Action
1	Select **System** from the main menu.
2	Select **Update Software**.
	The Update Software page opens.
3	Click **Browse**.
4	Select the camera handler pack and click **Open**.
	The name and filepath of the pack appears in the Upload New Package field.
5	Click **Upload**.
	The uploaded package is displayed in the Uploaded Packages list.
6	Select the new package from the list and click **Install**.

- End -

Failover Considerations

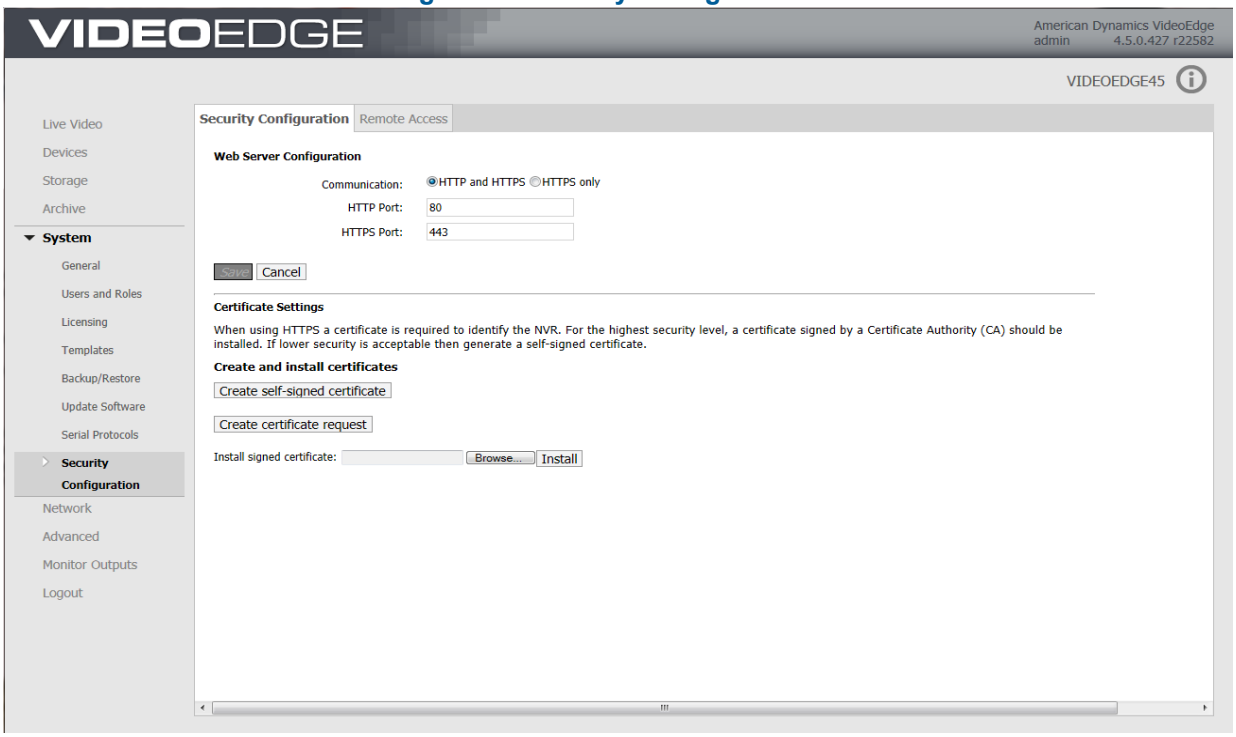
When a software update is applied either via a push update or applied manually using the Administration Interface, NVR services will restart. Temporary NVR service outage should therefore be expected when an update is applied.

It is recommended that you should schedule when NVR upgrades are applied and expect a loss of video when services restart. When upgrading NVRs which are being monitored by a secondary (Failover) NVR you need to stop Server Monitoring to prevent the secondary NVR taking over when the upgraded primary NVR's services stop.

Security Configuration

You can configure enhanced security settings to your NVR including web server configuration, certificate settings, remote access and the Systems root password.

Figure 6-8 Security Configuration tab



Web Server Configuration

You can configure the communication type being utilized by the NVR and assign bespoke HTTP and HTTPS Ports.

Procedure 6-25
Editing the Web Server Configuration

Step	Action
1	Select **System** from the main menu.
2	Select **Security Configuration**. The Security Configuration tab opens.
3	Select the **HTTP and HTTPS** option button. Or Select the **HTTPS only** option button. a Enter the **HTTP port** you want to use in the field. b Enter the **HTTPS port** you want to use in the field.
4	Click **Save**.

- End -

Certificate Settings

When using HTTPS communication, a certificate is required. Depending on the level of security required by your network you can either create a self-signed certificate or request one to be signed by your Certificate Authority (CA).

Creating a self-signed certificate

For users with a lower security requirement, you can create a self-signed certificate which can then be installed on victor unified client and victor site manager allowing communication between the recorder and the client.

Procedure 6-26
Creating a self-signed certificate

Step	Action
1	Select **System** from the main menu.
2	Select **Security Configuration**. The Security Configuration tab opens.
3	Click **Create self-signed certificate**.
4	Enter the **Country** code in the field. **Note:** The country code must be entered as per the standard SSL Certificate Country Code.
5	(Optional) Enter the **State or province** in the field.
6	(Optional) Enter the **Locality** in the field.
7	(Optional) Enter the **Organization** in the field.
8	(Optional) Enter the **Organizational Unit** in the field.
9	Edit the **Common Name** if required.
10	Edit the **Subject Alternative Name** if required.
11	Edit the **Validity** if required.
12	Click **OK**. The new certificate is activated.
13	Click **OK** and restart your browser.

- End -

Creating a request for a signed certificate

For users with more stringent security requirements, you can request a certiificate request for a signed certificate from your CA. Once the CA have issued a signed certifcate you can then install it using the Security Configuration page.

Procedure 6-27
Creating a certificate request

Step	Action
1	Select **System** from the main menu.

2 Select **Security Configuration**.

The Security Configuration tab opens.

3 Click **Create certificate request**.

4 Enter the **Country** code in the field.

Note:
The country code must be entered as per the standard SSL Certificate Country Code.

5 (Optional) Enter the **State or province** in the field.

6 (Optional) Enter the **Locality** in the field.

7 (Optional) Enter the **Organization** in the field.

8 (Optional) Enter the **Organizational Unit** in the field.

9 Edit the **Common Name** if required.

10 Edit the **Subject Alternative Name** if required.

11 Click **OK**.

The certificate request is displayed in PEM format.

12 Copy and paste the request into email or alternative file for sending to the CA.

13 Click **OK**.

- End -

Uploading a Signed Certificate

Once your CA has issued a signed certificate, it can be uploaded using the Security Configuration tab.

Procedure 6-28
Uploading a Signed Certificate

Step	Action
1	Select **System** from the main menu.
2	Select **Security Configuration**. The Security Configuration tab opens.
3	Click **Browse**.
4	Use the windows file explorer to located the signed certificate.
5	Click **Open**.
6	Click **Install**.

- End -

Remote Access

You can enable or disable VNC and XRDP remote access to the VideoEdge operating system using the Security Configuration menu item to suit your network's security requirements.

Procedure 6-29
Enabling and Disabling Remote Access

Step	Action
1	Select **System** from the main menu.
2	Select **Security Configuration**. The Security Configuration tab opens.
3	Select the **Remote Access** tab.
4	Click the **Enabled** icon in the entry you want to enable or disable remote access. A dialog box opens.
5	Click **OK**.

- End -

System Password

You can change the system password using the Security Configuration menu. This is the password for the local 'root' credential which provides full administrative access to the NVRs embedded operating system.

Caution

It is highly recommended for security reasons that you change the root password.

Note:
For security reasons, the System Password page must run under HTTPS.

Procedure 6-30
Changing the System Password

Step	Action
1	Select **System** from the main menu.
2	Select **SecurityConfiguration**. The Security Configuration tab opens.
3	Select the **System Password** tab.
4	(When viewing in HTTP Only) Click **Change to HTTPS**. A browser warning page displays to state there is a problem with the website's security certificate.
5	Select **Continue to this website (not recommended)**. **Note:** Wording may differ between browsers.
6	Enter the **Current Password**.
7	Enter the **New Password**.
8	Re-enter the New Password in the **Confirm Password** field.

Caution

It is extremely important that you remember this password. If necessary, you should write this password down and store it securely.

9 Click .

- End -

Network Menu Overview

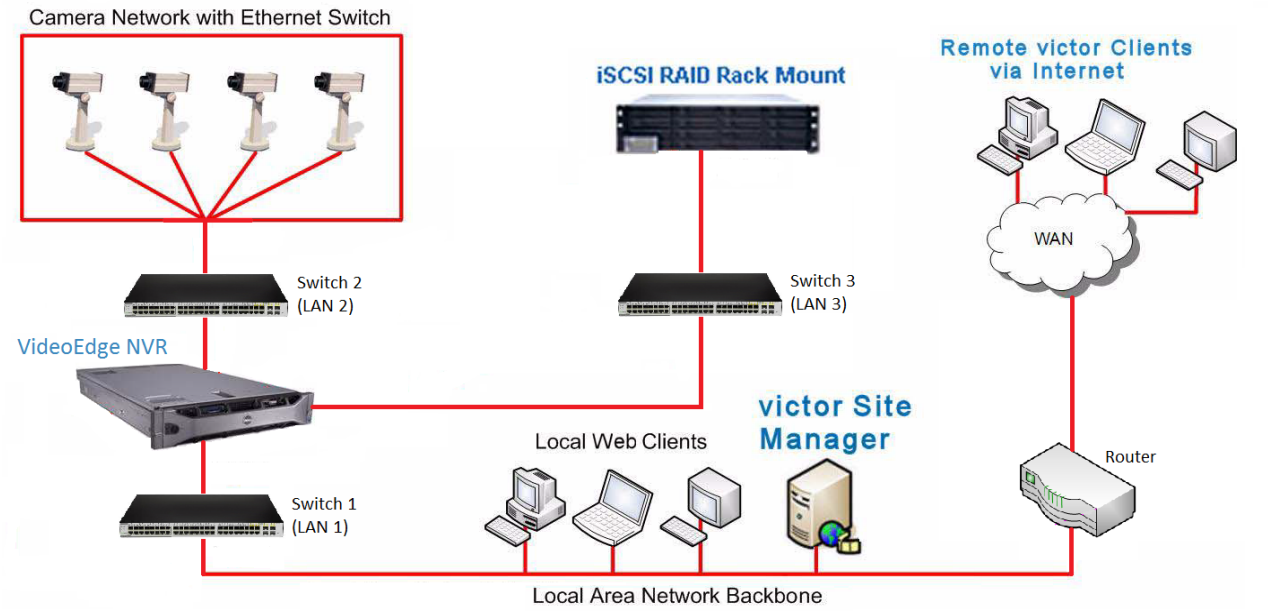
The **Network** Menu allows you to configure the NVR's network settings including general network settings, LAN Interface settings, DHCP Server settings, WAN settings and Dynamic Bandwidth Settings.

The **Network** menu has the following menu items;

- **General** - From here you can edit the Domain Name, Domain Name Serviers, Default Gateway, RSTP Port, NTP Status and NTP Servers.
- **LAN Interface** - From here you can edit the LAN settings for each installed NIC.
- **DHCP Server** - From here you can configure the NVR to host a DHCP Server on each of its installed NICs.
- **WAN Settings** - From here you can configure the NVR to operate in a wide area network.
- **Dynamic Bandwidth -** From here you can configure bandwidth throttling and transcoding.

Configuring the NVR Network Settings

Figure 7-1 Network Diagram Example



LAN 1 - Connects the NVR to the network with client PCs. Client PCs typically access the NVR through this port.

Note:
LAN 1's default IP Address for an NVR supplied as a hardware and software bundle is **10.10.10.10**.

LAN 2 - Connects the camera network to the NVR. With this architecture, the NVR acts as a firewall between users and the cameras.

The users do not have direct access to the cameras on LAN 2 and must access the NVR in order to view and configure the cameras. As the LAN 2 cameras are not on the main network, they use less network bandwidth from the main network.

In this example DHCP is enabled on LAN 2 so that the NVR can automatically assign IP addresses to cameras that are added to LAN 2. The NVR can have DHCP enabled for each of its NIC's.

LAN 3 - Connects network storage devices to the NVR.

Caution

Connecting an NVR running a DHCP server to a network that already has a DHCP server can disrupt network service on that network.

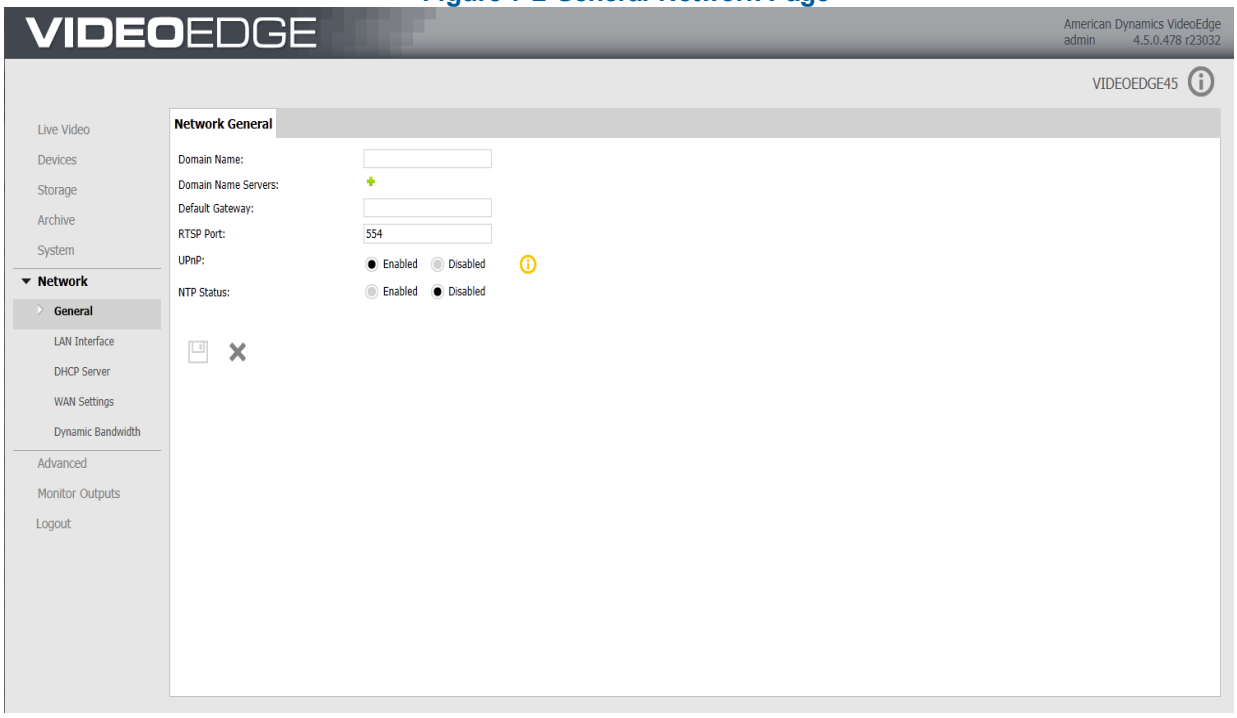
If you have more than one NVR on LAN 2, you will need to disable DHCP on all but one of the LAN 2 NVRs, so that cameras are receiving IP Addresses from only one DHCP server.

Note:
When the NVR is supplied as a hardware and software bundle only LAN 1 will be enabled, all other NIC's will be disabled.

General

The General Network page provides you the option to edit the basic connection settings for the NVR network and to enable/disable its NTP functionality. These settings include; Domain Name, Domain Name Servers, Default Gateway, RTSP Port, NTP Status, NTP Servers WAN Bitrate Cap, LAN Bitrate Cap and UPnP enable and disabling.

Figure 7-2 General Network Page



Domain Name and Domain Name Servers

Under the General Network settings you can assign a bespoke Domain Name and create a list of DNS servers which provide name resolution services i.e. convert IP addresses to hostnames.

Procedure 7-1
Edit the Domain Name and Domain Name Servers

Step	Action
1	Select **Network**.
2	Select **General**. The Network General tab displays.
3	To edit the **Domain Name** select the current value. Update the Domain Name as required. The field background changes to yellow indicating a change has been made.
4	To add a Domain Name Server to the Domain Name Servers select ✚. A text box displays.
5	Enter the **IP Address** in the field. The field background changes to yellow indicating a change has been made.

6	To enter several Domain Server IP Addresses select + to add an additional IP Address field and enter the IP Address.
7	Click **Save**. Confirmation messages display.

- End -

Default Gateway

In the General Network settings you can edit the IP Address of the Default Gateway. The default gateway must be set manually if the NVR is not using a DHCP server. The default gateway allows the NVR to have connectivity with IP addresses beyond the directly connected subnets of its own NICs.

Procedure 7-2
Editing the Default Gateway

Step	Action
1	Select **Network**.
2	Select **General**. The Network General tab displays.
3	To edit the **Default Gateway** select the current value. Update the Default Gateway as required. The field background changes to yellow indicating a change has been made.
4	Click **Save**. A warning dialog will display stating 'Changing the default gateway may result in your NVR becoming inaccessible. If this happens, you will need to physically connect to the NVR to re-enable network access. Are you sure you want to proceed?'.
5	Click **OK**. A confirmation message displays.

- End -

RTSP Port

If you need to modify the default RTSP Streaming Port for your NVR to conform to your network rules, you can use the RTSP Streaming Port field on the General Settings page to change the port setting.

Procedure 7-3
Editing the RTSP Port

Step	Action
1	Select **Network**.
2	Select **General**. The Network General tab displays.
3	To edit the **RTSP Port** select the current value. Update the RTSP Port as required. The field background changes to yellow indicating a change has been made.
4	Click **Save**. A confirmation message displays.

Note:
The default RSTP Port number is **554**.

- End -

NTP Status and NTP Servers

You can use external NTP servers to synchronize date and time instead of using the NVR as the NTP Server.

Note:
You should setup all NVRs and client systems to use the same NTP Server, to synchronize date and time settings.

Procedure 7-4
Editing the NTP Status and NTP Servers to Synchronize Date and Time from the Internet

Step	Action
1	Select **Network**.
2	Select **General**. The Network General tab displays.
3	To edit the NTP Status click either the **Enable** or **Disable** option buttons. The area behind the option buttons changes to yellow indicating a change has been made.
4	To edit the **NTP Servers** click .
5	Enter the NTP Server IP Address in the field. The field background changes to yellow indicating a change has been made.
6	To enter several NTP Server IP Addresses click to add an additional IP Address. Enter the IP Address in the field.
7	Click **Save**. A confirmation message displays.

- End -

UPnP

By default, NVR UPnP advertisements are enabled to allow networked devices to be discovered by victor Unified Client. If required, this can be disabled.

Procedure 7-5
Disabling NVR UPnP Advertisements

Step	Action
1	Select **Network**.
2	Select **General**. The Network General tab displays.
3	Select the **UPnP Disable** option button.
4	Click **Save**.

UPnP will now disabled.

- End -

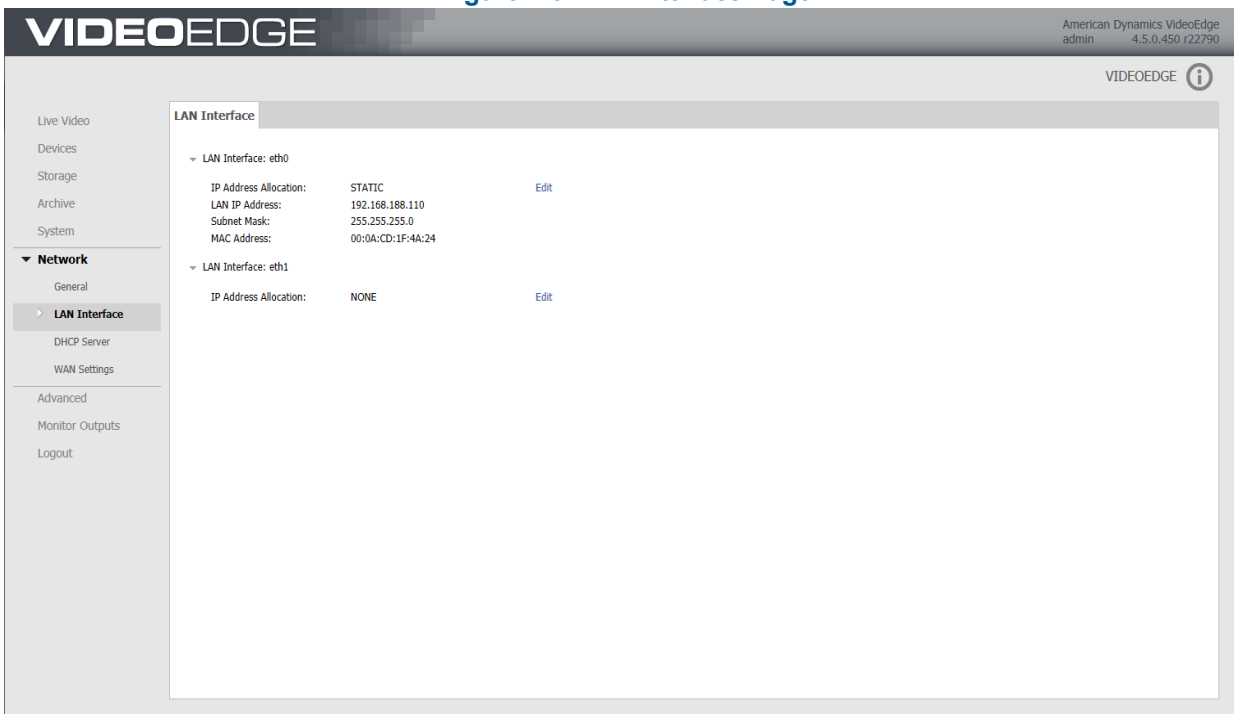
LAN Interface

The LAN Interface page allows you to enable and disable the NICs of the NVR. Each NIC provides a LAN interface for the NVR.

The LAN Interface page also allows you to edit the available LAN Interfaces. In the LAN Interface page the NIC's associated with the NVR will be displayed and available for editing. The LAN Interface page allows you to edit the IP Address Allocation, LAN IP Address and Subnet Mask. The page will also display the MAC address for each NIC on the NVR.

Note:
If you are configuring or editing the LAN Interface Settings for a primary NVR when Failover mode is in use on your network, the units Virtual IP address will also display on this page. It can not be edited.

Figure 7-3 LAN Interface Page



Procedure 7-6
Enabling NIC's

Step	Action
1	Select **Network**.
2	Select **LAN Interface**. The LAN Interface page opens.
3	Select the dropdown arrow next to the LAN Interface you want to edit.
4	Select .
5	Select the **IP Address Allocation** dropdown.
6	Select **DHCP**, this will allow a DHCP Server on the LAN to assign an IP address for that NIC of the NVR.

Note:
The use of DHCP for all of the NVR's NICs is not recommended. To open the NVR Administrator Interface the IP address of one of the NICs must be known, if all the IP addresses are dynamic they will vary in value. It is recommended that a NIC is configured with a static IP address and subnet mask for this reason.

Or

Select **STATIC** to permanently assign an IP address and subnet mask to the NVR.

When using Static IP addresses you will be required to enter the IP address and subnet mask in the corresponding fields.

7 Click .

A dialog box displays advising that changing network interface settings may result in your NVR becoming inaccessible.

8 Click **OK**.

- End -

Procedure 7-7
Disabling NIC's

Step	Action

1 Select **Network**.

2 Select **LAN Interface**.

The LAN Interface page opens.

3 Select the dropdown arrow next to the LAN Interface you want to edit.

4 Select .

5 Select the **IP Address Allocation** dropdown.

6 Select **NONE**.

When **NONE** is selected the LAN Interface options for that NIC will collapse leaving only the IP Address Allocation displayed.

7 Click .

A dialog box displays advising that changing network interface settings may result in your NVR becoming inaccessible.

8 Click **OK**.

Note:
If you disable eth0 using the NVR Administration Interface it will terminate its connection on that NIC. To re-establish connection you can access the Administration Interface using the IP Address of one of the other active NIC's.

- End -

Procedure 7-8
Editing the LAN Interface Values

Step	Action
1	Select **Network**.
2	Select **LAN Interface**. The LAN Interface page opens.
3	Select the dropdown arrow next to the LAN Interface you want to edit.
4	Select .
5	To edit the **LAN IP Address**, enter the desired IP Address in the field.
6	To edit the **Subnet Mask**, enter the desired Subnet Mask in the field.
7	Click . **Note:** The displayed MAC Address cannot be edited.

- End -

Show Visible Port Identification

You can use the Show visible port identifaction feature to identify the physical location of each LAN interface on the NVR to aid correct connection to the appropriate network.

Note:
This feature is available for each LAN Interface provided it is supported by the installed network card.

Procedure 7-9
Using the Show Visible Port Identification feature

Step	Action
1	Select **Network**.
2	Select **LAN Interface**. The LAN Interface page opens.
3	Enter the **time** (in seconds) you want the LED indicator to blink.
4	Click **Blink**.

- End -

DHCP Server

The DHCP Server page provides the option to configure the NVR to host a DHCP Server for each network card plugged into the system. This allows the NVR to allocate IP addresses from the range specified when other devices request IP allocation.

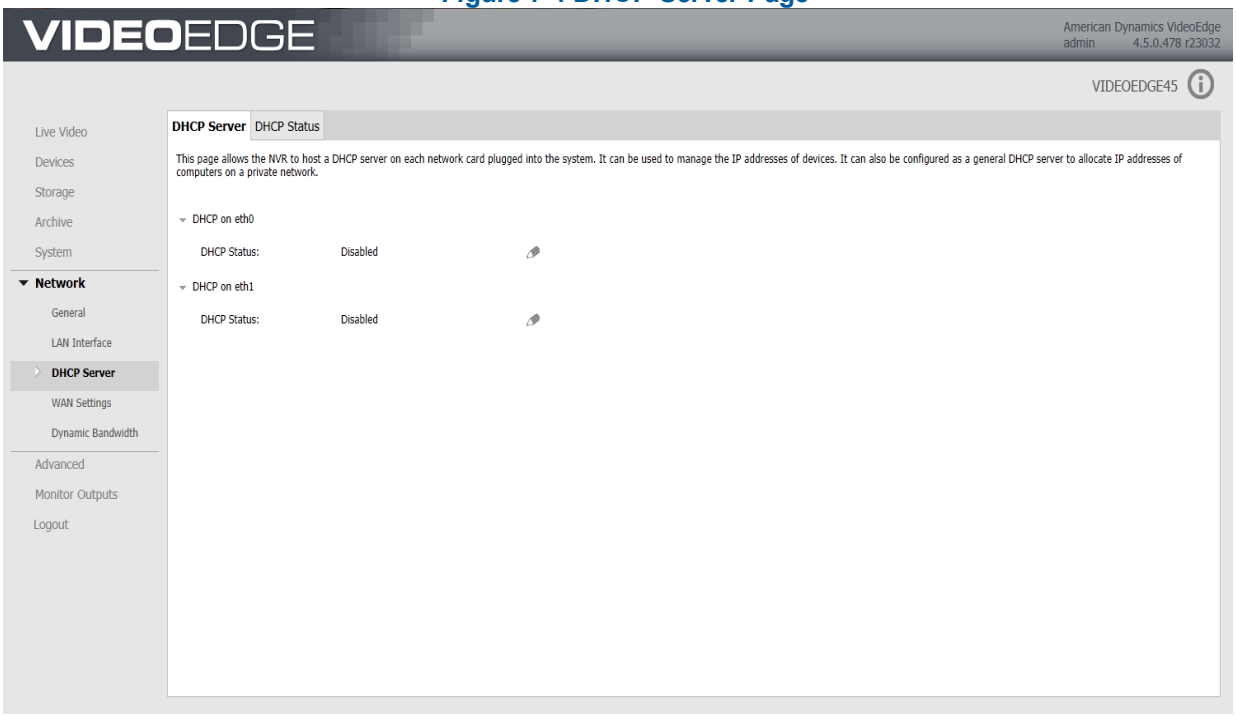
The page allows you to edit the DHCP Status and the Start and End Range of IP Addresses to be included during automatic searching for IP Devices.

The DHCP Status page allows you to view all active devices which have been assigned an IP address by the NVR acting as a DHCP server. The page displays the IP addresses in use by the device, its MAC address, when it was last active and the device's hostname.

Caution

You should only set up the NVR as a DHCP Server if you are positive the LAN does not already have a DHCP Server, and the NVR has been assigned a static IP Address. Otherwise you could have two different DHCP Servers giving out IP addresses, and this could cause network problems.

Figure 7-4 DHCP Server Page



Procedure 7-10
Editing the DHCP Server Settings

Step	Action
1	Select **Network**.
2	Select **DHCP Server**. The DHCP Server settings page opens.
3	Select the dropdown arrow next to the LAN Interface you want to edit.

Note:
NICs which have been configured with a DHCP IP Address Allocation will be greyed out and not available to be used to host DHCP Servers. A message is also displayed stating 'DHCP cannot be enabled on this interface unless the IP allocation method is set to STATIC on the 'LAN Interface' page.'

4 Select **Edit**.

5 To edit the DHCP Status select either the **Enable** or **Disable** option buttons.

When Enabled is selected the DHCP options for that NIC expand.

6 To edit the DHCP Start Range and End range type the lowest and highest IP address to be assigned, respectively. For example, if your network addresses were between 10.11.12.50 and 10.11.12.100, you could type 10.11.12.50 for DHCP Range Start and 10.11.12.100 for DHCP Range End.

7 Click **Save**.

Note:
Subnet and Netmask can not be edited in this page. The DHCP Start Range and End Range can only be entered when the DHCP Status is set to **Enabled**.

- End -

Procedure 7-11
Viewing the DHCP Status

Step	Action

1 Select **Network**.

2 Select **DHCP Server**.

The DHCP Server settings page opens.

3 Select the **DHCP Status** page.

The DHCP Status page opens.

Note:
You can now view all devices being managed by the NVR's DHCP server. The information displayed includes the IP addresses in use by the device, MAC address for connected devices, the time a device was last active and the Hostname for each device.

- End -

WAN Settings

The WAN Settings page allows you to configure the NVR to operate in a wide area network (WAN) configuration. The WAN Settings page lets you specify the name or IP address that can be used to access an NVR located behind a NAT firewall (such as a corporate LAN) that presents a single public address for connections from outside the LAN. You can also specify the ports that are used for HTTP, secure HTTP and streaming (RTSP) connections to the NVR. You can also enter a list of allowed IP addresses. In addition, the General Settings page allows you to change the RTSP Streaming Port.

Note:
For a new install, the Setup WAN fields display the default values. If you upgrade the NVR, these fields will display the previously assigned values however if you carry out an appliance install the values will be lost unless a template has been created and applied. If you enter a value into any of these fields, that value is saved, and is displayed until modified.

Figure 7-5 WAN Port Mapping Exam

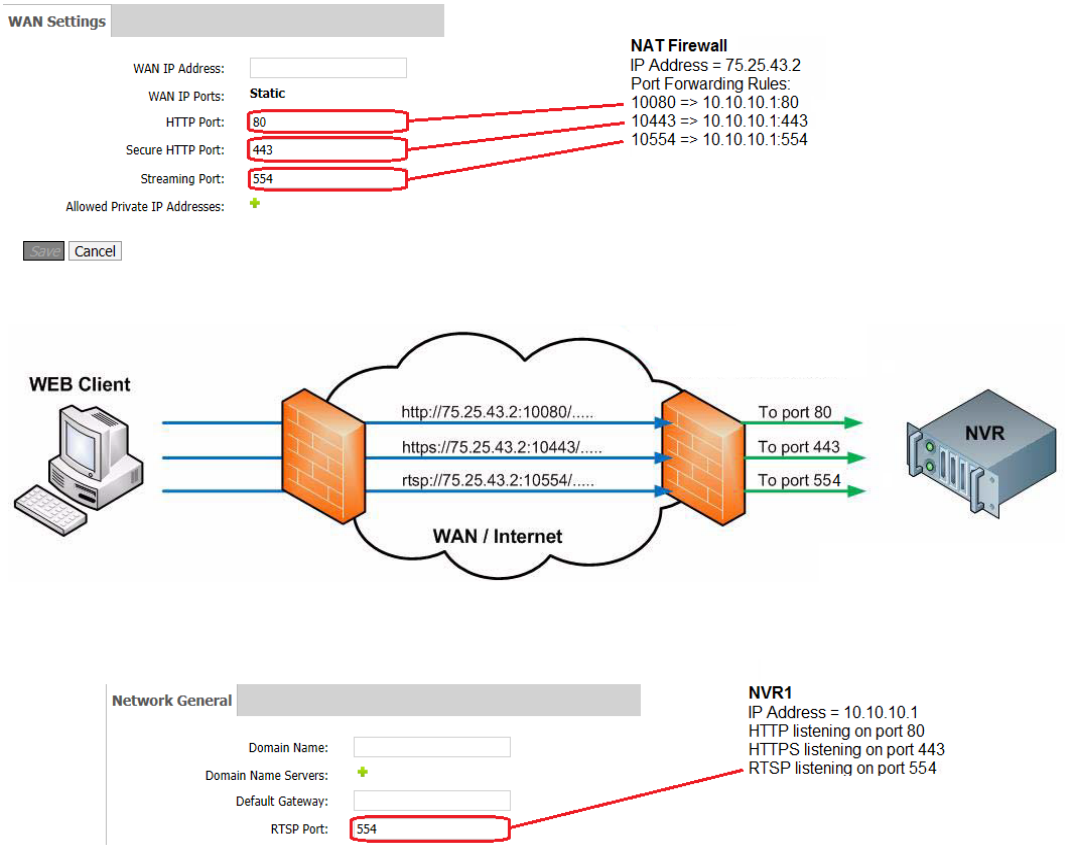
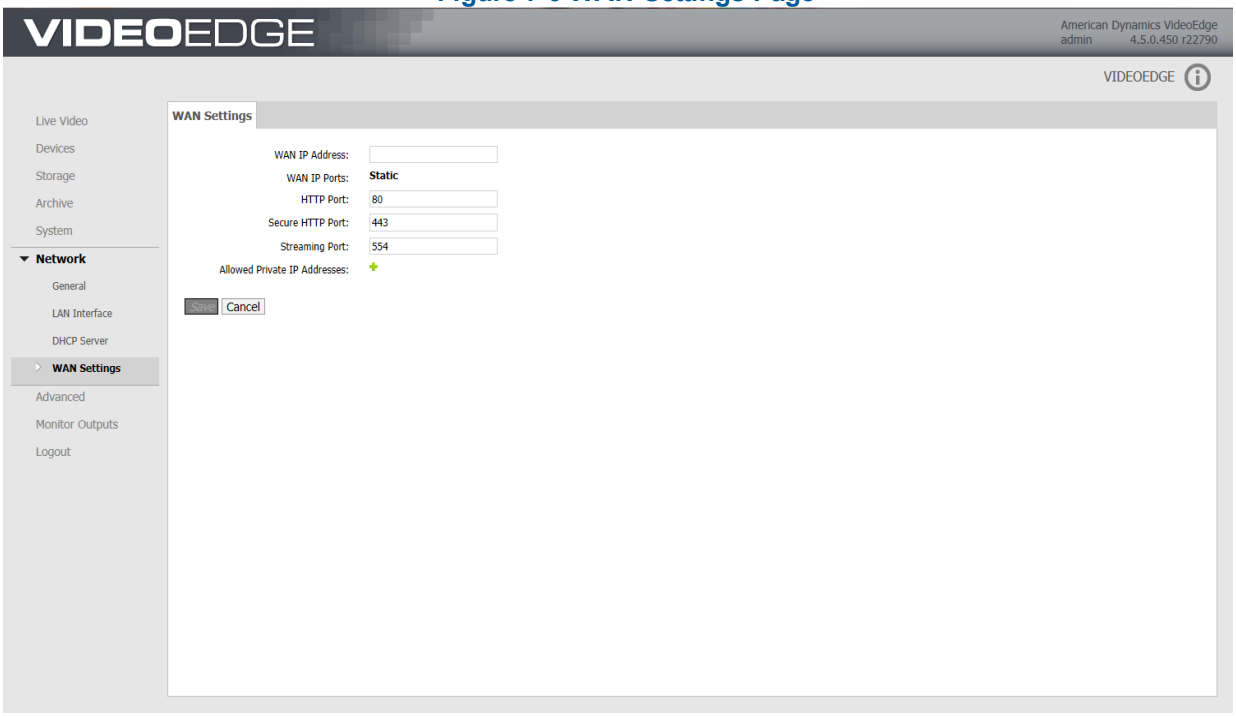


Figure 7-6 WAN Settings Page



WAN IP Address

Under the WAN Settings you can edit the WAN IP Address.

Procedure 7-12 Editing the WAN IP Address

Step	Action
1	Select **Network**.
2	Select **WAN Settings**. The WAN settings page opens.
3	To edit the **WAN IP Address** select the current value. Update the WAN IP Address as required. The field background changes to yellow indicating a change has been made.
4	Click **Save**. A confirmation message displays.

- End -

HTTP Port

This is the port number used to identify this NVR if more than one NVR is behind the NAT firewall.

In the HTTP address typed by the user when accessing an NVR, a port number can be specified (for example, http://70.30.22.81:80. Port 80 is normally assumed by default. However, if two NVRs are behind the same NAT firewall, they are both exposed as the same public address, so the only way to distinguish between them is by port forwarding rules at the firewall level. This means that both NVRs will still listen on port 80 for HTTP requests but that publicly NVR1 might be contactable as http://70.30.22.81:80, while NVR2 is contactable as http://70.30.22.81:10080.

The firewall is configured to accept NVR2 requests at http://70.30.22.81:10080 and forward them to http://<NVR2 private IP>:80.

This field must be set in scenarios where multiple NVRs are situated behind the same NAT firewall. In this example, this field on NVR2 must be set to 10080.

Note:
If Failover functionality is active the Failover HTTP Port will be displayed for your information. It can not be edited.

Procedure 7-13
Editing the HTTP Port

Step	Action
1	Select **Network**.
2	Select **WAN Settings**. The WAN settings page opens.
3	To edit the **HTTP Port** select the current value. Update the HTTP Port as required. The field background changes to yellow indicating a change has been made.
4	Click **Save**. A confirmation message displays. **Note:** The default HTTP Port value is **80**.

- End -

Secure HTTP Port

This is the port number used to identify this NVR if more than one NVR is behind the NAT firewall, and a secure connection (https) is being made.

If an HTTPS address is being used to access an NVR, a port number can be specified (for example, https://70.30.22.81:443. Port 443 is normally assumed by default. However, if two NVRs are behind the same NAT firewall, they are both exposed as the same public address, so the only way to distinguish between them is by port forwarding rules at the firewall level. This means that both NVRs will still listen on port 443 for HTTPS requests but that publicly NVR1 might be contactable as https://70.30.22.81:443, while NVR2 is contactable as https://70.30.22.81:100443. The firewall is configured to accept NVR2 requests at https://70.30.22.81:100443 and forward them to https://<NVR2 private IP>:443.

This field must be set in scenarios where multiple NVRs are situated behind the same NAT firewall. In this example, this field on NVR2 must be set to 10443.

Procedure 7-14
Editing the Secure HTTP Port

Step	Action
1	Select **Network**.
2	Select **WAN Settings**. The WAN settings page opens.

3 To edit the **Secure HTTP Port** select the current value. Update the Secure HTTP Port as required.

The field background changes to yellow indicating a change has been made.

4 Click **Save**.

A confirmation message displays.

Note:
The default HTTP Port value is **443**.

- End -

Streaming Configured Port

This is the port number used for the real time streaming protocol (RTSP) connection to this NVR if more than one NVR is behind the NAT firewall, when video is being streamed to a client programmatically via RTSP.

Port 554 is the default port for RTSP connection. However, if two NVRs are behind the same NAT firewall, they are both exposed as the same public address, so the only way to distinguish between them is by setting up port forwarding rules at the firewall level. This means that both NVRs listen on port 554 for HTTPS requests but that publicly NVR1 might be contactable as https://70.30.22.81:554, while NVR2 is contactable as https://70.30.22.81:100554. The firewall is configured to accept NVR2 requests at https://70.30.22.81:100554 and forward them to https://<NVR2 private IP>:554.

This field must be set in scenarios where multiple NVRs are situated behind the same NAT firewall. In this example, this field on NVR2 must be set to 10554.

Note:
If Failover functionality is active the Failover Streaming Port will be displayed for your information. It can not be edited.

Procedure 7-15
Editing the Streaming Configured Port

Step	Action
1	Select **Network**.
2	Select **WAN Settings**. The WAN settings page opens.
3	To edit the **Streaming Port** select the current value. Update the Streaming Port as required. The field background changes to yellow indicating a change has been made.
4	Click **Save**. A confirmation message displays.

Note:
The default HTTP Port value is **554**.

- End -

Allowed IP Addresses

These are the public IP addresses that are permitted for use with the NVR. A public IP address is one which is not in the following ranges:

- 10.0.0.0 - 10.255.255.255
- 172.16.0.0 - 172.31.255.255
- 192.168.0.0 - 192.168.255.255

Procedure 7-16
Adding Allowed IP Addresses

Step	Action
1	Select **Network**.
2	Select **WAN Settings**. The WAN Settings page opens.
3	To add an IP Address to the Allowed IP Address click . The IP Address and Subnet Mask text boxes display.
4	Enter the IP address in the **IP Address** field.
5	Enter the subnet mask in the **Subnet Mask** field.
6	Click **Save**.

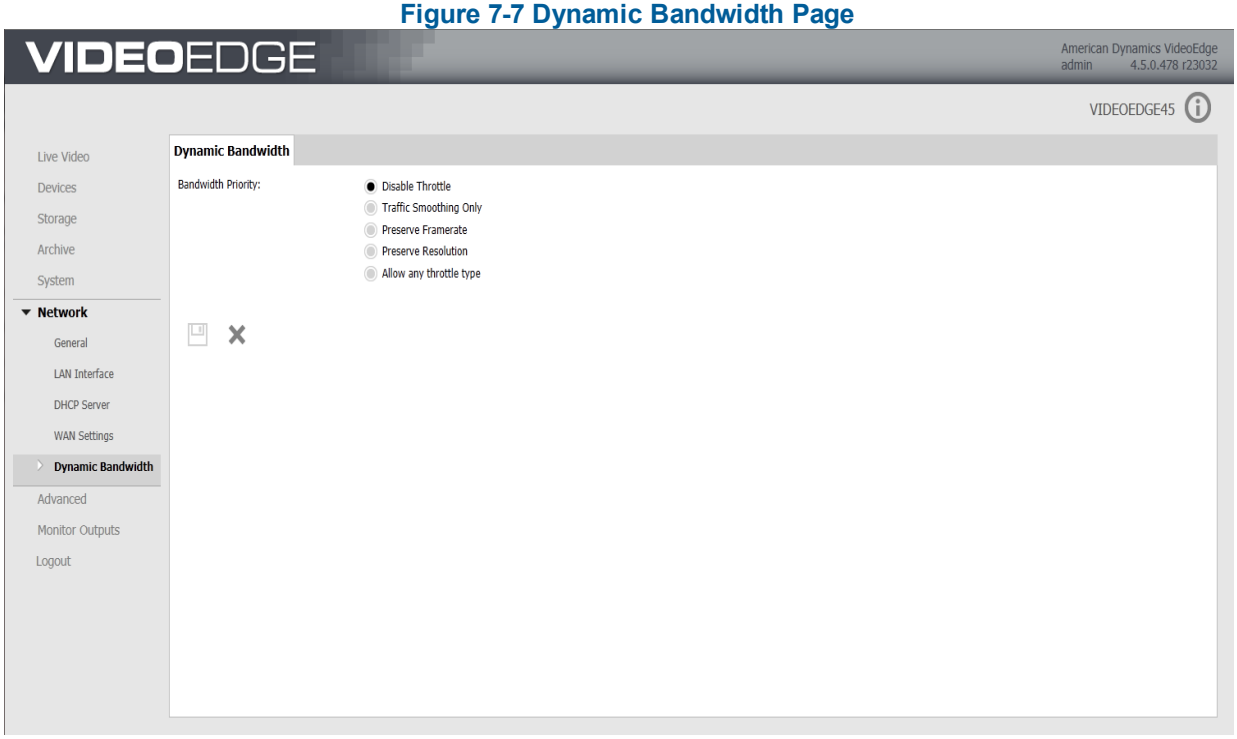
- End -

Dynamic Bandwidth

In the Dynamic Bandwidth page you can edit the Bandwidth throttling, by default the Bandwidth throttling is disabled (no framedropping or transcoding are invoked). Editing Bandwidth Throttling changes the type of throttling which is utilized during streaming of video.

The options available for configuration on the page vary with the Bandwidth Priority which is selected. Options will only display for editing if they are applicable to that Bandwidth Priority.

Figure 7-7 Dynamic Bandwidth Page



Bandwidth Priority

Bandwidth Priority allows you to select the type of throttling you wish to attempt to use. You can chose to disable throttling or use one of the four predefined throttling options; **Traffic Smoothing Only**, **Preserve Framerate**, **Preserve Resolution** and **Allow any throttle type**.

When any of the four predefined throttling types are selected the **Traffic Smoothing** fields display. Traffic Smoothing reduces the appearance of framedrop on the LAN client by smoothing traffic from the NVR. Traffic Smoothing can be configured for both the client and the stream, it is entered in Mbps and its default values for each of the four predefined bandwidth priorities will appear as 300 Mbps for the client and 75 Mbps for the stream, these figures can be edited to match the capabilities of your network and your client host (client NIC and performance), as this feature addresses issues with poor performance network cards on victor client.

Note:
The Traffic Smoothing function is carried out separately from the four transcoded streams of video and can reduce the NVR's performance.

When Preserve Framerate, Preserve Resolution and Allow any throttle type are selected the WAN and LAN bitrate cap dropdowns display.

Note:
A bitrate cap limits the amount of streaming data (i.e. video) leaving the NVR to remote clients or clients connected using VPN. The WAN bitrate cap cannot exceed the LAN bitrate cap.

The dropdown menus provide a list of predefined values which you can choose from. Alternatively a custom value can be entered and there is no minimum entry value. This allows experienced users to customise their WAN and LAN Bitrate Caps to best utilise their networks capabilities.

Note:
If the LAN or WAN bitrate cap is set to a value which is less than the Traffic Smoothing value, Traffic Smoothing will have no affect on the transmitted stream as it will adhere primarily to the bitrate cap. It is recommended that Traffic Smoothing is set to a value less than or equal to the LAN and WAN bitrate caps.

Usually WAN connections have lower bandwidth than LAN connections, if the WAN bandwidth is less than the default value of 150 Mbps Traffic Smoothing will have little to no effect.

When Preserve Framerate and Allow any throttle type are selected the Transcode Limit dropdown also displays. This allows you to limit the number of transcoded streams between 1 and 4 to best suit your CPU's capabilities.

Traffic Smoothing Only

Allows the ability to pace the traffic leaving the NVR to individual clients without incurring framedrop or transcode. This smooths bursts of traffic which may cause issues for some consumer grade NICs consuming this data.

Procedure 7-17
Selecting Traffic Smoothing Only

Step	Action
1	Select **Network**.
2	Select **Dynamic Bandwidth**.
	The Dynamic Bandwidth page opens.
3	Click the **Traffic Smoothing Only** option button.
	The area behind the option buttons changes to yellow indicating a change has been made.
	The Traffic Smoothing fields display.
4	To edit the **Client** and **Stream** fields select the current values. Update the Client and Stream values as required.
	The field backgrounds change to yellow indicating a change has been made.
5	Click .
	Confirmation messages display.

- End -

Preserve Framerate

Any overloaded network or set caps on the NVR/client will allow the NVR to adapt the streams accordingly by reducing the bitrate by transcoding a stream to H.264, lower bitrate and possibly lower resolution. If all transcode resources are used, best effort streaming will occur.

Procedure 7-18
Selecting Preserve Framerate

Step	Action
1	Select **Network**.
2	Select **Dynamic Bandwidth**. The Dynamic Bandwidth page opens.
3	Click the **Preserve Framerate** option button. The area behind the option buttons changes to yellow indicating a change has been made. The Traffic Smoothing fields display.The LAN and WAN Bitrate Cap dropdowns display. The Transcode Limit Dropdown displays.
4	To edit the **Client** and **Stream** fields select the current values. Update the Client and Stream values as required. The field backgrounds change to yellow indicating a change has been made.
5	The **WAN** and **LAN** Bitrate Caps can be set to either a predefined value from the dropdown menus or alternatively a custom value can be entered in the field. To use a predefined value open the dropdown, select the desired predefined value from the list. Or a To use a custom value, select **Custom** from the dropdown. The custom entry field displays. b To edit the **bitrate cap** value select the current value. Update the bitrate cap value as required. The field backgrounds change to yellow indicating a change has been made. **Note:** The custom value must be entered in **kbps**. For example to enter a value of 5.5Mbps you would type a value of 5500.
6	From the **Transcode Limit** dropdown select the number of streams desired.
7	Click . Confirmation messages display.

- End -

Preserve Resolution

Any overloaded network or set caps on the NVR/client will allow the NVR to adapt the streams accordingly by reducing the stream output using framedrop. If framedrop should fail or doesn't occur, then best effort streaming will occur.

Procedure 7-19
Selecting Preserve Resolution

Step	Action
1	Select **Network**.

2 Select **Dynamic Bandwidth**.

The Dynamic Bandwidth page opens.

3 Click the **Preserve Resolution** option button.

The area behind the option buttons changes to yellow indicating a change has been made.

The Traffic Smoothing fields display.

The LAN and WAN Bitrate Cap dropdowns display.

4 To edit the **Client** and **Stream** fields select the current values. Update the Client and Stream values as required.

The field backgrounds change to yellow indicating a change has been made.

5 The WAN and LAN Bitrate Caps can be set to either a predefined value from the dropdown menus or alternatively a custom value can be entered in the field.

To use a predefined value open the dropdown, select the desired predefined value from the list.

Or

a To use a custom value, select **Custom** from the dropdown.
The custom entry field displays.

b To edit the **bitrate cap** value select the current value. Update the bitrate cap value as required.

The field backgrounds change to yellow indicating a change has been made.

Note:
The custom value must be entered in **kbps**. For example to enter a value of 5.5Mbps you would type a value of 5500.

6 (Optional) Select the **Allow frame drop to local (LAN) clients** to apply bandwidth throttling to devices sharing the same local network.

7 Click .

Confirmation messages display.

- End -

Allow Any Throttle Type

Any overloaded network or set caps on the NVR/client will allow the NVR to adapt the streams accordingly by either transcoding, transcoding and framedropping on the transcoded stream and if all the transcode resources are used, framedrop will be invoked only. If any of the above should fail, then best effort streaming will occur.

Procedure 7-20
Selecting Allow Any Throttle Type

Step	Action
1	Select **Network**.
2	Select **Dynamic Bandwidth**. The Dynamic Bandwidth page opens.
3	Click the **Allow any throttle type** option button. The area behind the option buttons changes to yellow indicating a change has been made.

The Traffic Smoothing fields display.

The LAN and WAN Bitrate Cap dropdowns display.

The Transcode Limit Dropdown displays.

4 To edit the **Client** and **Stream** fields select the current values. Update the Client and Stream values as required.

The field backgrounds change to yellow indicating a change has been made.

5 The WAN and LAN Bitrate Caps can be set to either a predefined value from the dropdown menus or alternatively a custom value can be entered in the field.

To use a predefined value open the dropdown, select the desired predefined value from the list.

Or

a To use a custom value, select **Custom** from the dropdown.
The custom entry field displays.

b To edit the **bitrate cap** value select the current values. Update the bitrate cap value as required.

The field backgrounds change to yellow indicating a change has been made.

Note:
The custom value must be entered in **kbps**. For example to enter a value of 5.5Mbps you would type a value of 5500.

6 (Optional) Select the **Allow frame drop to local (LAN) clients** to apply bandwidth throttling to devices sharing the same local network.

7 From the **Transcode Limit** dropdown select the number of streams desired.

8 Click .

Confirmation messages display.

- End -

Advanced Menu Overview

The **Advanced** Menu allows you to configure/view the NVR's advanced system settings and information including Failover, storage, statistics, logs, Dark Image Detection, email alerts, serial ports, connected clients, reset to factory defaults and shutdown options.

The **Advanced** menu has the following menu items;

- **Failover** - From here you can configure the NVR to act as a Failover server.
- **Storage Statistics** - From here you can view statistics relating to storage..
- **Stream Statistics** - From here you can view statistics relating to recorded video and audio streams..
- **Archive Statistics** - From here you can view statistics relating to archiving.
- **Logs** - From here you can generate log files for use by American Dynamics Technical Support..
- **Dark Image Detection** - From here you can enable dark image detection and apply a darkness threshold..
- **Email Alerts** - From here you can enable and configure email alerts.
- **Serial Ports** - From here you can configure the NVR's serial ports.
- **Connected Clients**- From here you can view a list of all clients which have an active connection with the NVR.
- **Reset to Factory Defaults** - From here you can reset the NVR's settings to the factory defaults. Options are provided to erase all media, maintain all media or re index all media.
- **Shutdown** - From here you can restart NVR services, Stop NVR services, reboot the NVR or shutdown the NVR.

NVR Failover

You can configure an NVR to act as a Failover NVR or secondary NVR. When configured as a secondary NVR the NVR will monitor other NVRs on the network which have been added to its server monitoring list. NVRs which have been added to the secondary's server monitoring list are known as primary NVRs.

The secondary NVR will continuously monitor all the primary NVRs. In the event that a primary NVR fails the secondary NVR will then switch into failover mode and take over providing services previously provided by the primary NVR. When the secondary NVR is in Failover mode it can no longer takeover for another primary NVR. The secondary NVR can only take over providing services for one primary NVR at a time. Using the default Failover configuration settings, the secondary NVR will detect the absence of the primary NVR after approximately 30 seconds and will initiate assuming the role of the primary NVR.

Note:
For optimum performance it is recommended to use 1 secondary NVR to monitor a maximum of 8 primary NVRs.

When a primary NVR fails, the secondary NVR assumes the role of the failed NVR and automatically takes over its services.The secondary NVR will record all media that the primary NVR was recording, if you have Motion Detection, Video Intelligence, Edge analytics or dry contact events enabled these will also be assumed by the secondary NVR.

Failover can support both IP and analog video connections. Analog video connections are supported only when cabling is sufficiently connected between the primary NVRs and secondary NVR. The camera password group information is also transferred to allow the Failover NVR to communicate with the cameras. User account information is not transferred, therefore the primary and secondary NVRs must share the same username and password.

Failover monitoring resumes only after the damaged primary NVR is repaired or replaced, and the secondary NVR is returned to normal monitoring operation. Failover must be terminated manually using the secondary NVR's Administration Interface to return it to normal monitoring operation

Note:
1. The secondary NVR is intended to act as a redundant standby for the NVRs it monitors. The secondary NVR is not intended to manage cameras on its own, because these cameras would no longer be accessible when the secondary NVR takes over for a failed primary NVR. Any camera configuration changes you have made whilst the secondary NVR has taken over the primary NVR's services will be lost when failover is terminated. Camera configuration is not synced back from the secondary NVR to primary NVR.

2. During Failover the archiving configuration on the primary NVR will not be assumed by the secondary NVR. Media recorded to a secondary NVR can be archived if you configure archiving on the secondary NVR.

How Failover is Initiated

When Failover is configured the secondary NVR polls the primary NVR at the configured polling interval over the camera network. There are three possible responses from the primary NVR:

- The secondary NVR does not receive a reply from the NVR. This could occur due to a power failure, issues with the NVR hardware, loss of connection with the camera network and so on. In this instance the secondary NVR sends a video stream status request to the primary NVR over the admin network. If the primary NVR replies that there are no video streams recording when one or more streams should be recorded at the time of the request, the secondary NVR will mark this as a 'failure'. The secondary NVR will repeat the polling process until the retry count is exceeded. If the secondary NVR continues to receive a 'failure' from the primary NVR, Failover will be initiated.
- The secondary NVR receives a 'failure' from the primary NVR. This could occur due to operator action, for example if the primary NVR services are stopped. In this instance the secondary NVR will attempt to poll the primary NVR again (the number of polling attempts is determined by the retry count, for further

information refer to Failover Advanced Configuration). Should the secondary NVR continue to receive a 'failure' from the primary NVR, Failover will be initiated.

- The secondary NVR receives a 'good' reply from the primary NVR. In this instance a no Failover action is taken.

Alerts

Alerts are sent to victor unified client by the secondary NVRs when the following occur:

- The secondary NVR detects the primary NVR has failed and is assuming the primary NVR's role.
- You terminate Failover mode after the primary NVR is operational again.

If Failover email alerts have been enabled, the following notifications will be sent on a Failover event:

- The secondary NVR will send an email notification stating "Activating Failover Mode for NVR at primary-IP-address"
- The primary NVR will send an email notification stating "Primary NVR transitioning to standby state"

If Failover and Reboot notification email alerts have been enabled, the following notifications will be sent on a Failover event:

- The secondary NVR will send the following email notifications stating; "Activating Failover Mode for NVR at primary-IP-address" and "NVR services are being shut down."
- The primary NVR will send the following email notifications stating; "Primary NVR transitioning to standby state" and "NVR services are being shut down."

Virtual IP Addresses

When adding a primary NVR for monitoring you will be required to enter a virtual IP address for that NVR. The virtual IP address allows you to seamlessly search and retrieve video from the secondary NVR which was recorded during the failover period.

The virtual IP address must belong to the management interface (client LAN) subnet on the secondary NVR. The NVR and victor unified client communicate over the management interface (client LAN). If the virtual IP address does not belong to one of the secondary NVR's subnets, the settings will not be applied and an error message will display. If using DHCP you must allocate a range of addresses for use as virtual IP addresses to ensure conflicts do not occur.

Recorded video on the secondary NVR is associated with the virtual IP address of the primary NVR. Should the secondary NVR be required to switch to failover mode for multiple NVRs during its operation the recorded video associated with each primary NVR can be retrieved.

Note:
When the secondary NVR's available storage is depleted, data culling will occur. To manage storage you can configure the maximum retention for each slot that may be populated by a recording device in the event of Failover.

Using an NVR in Failover Mode

When viewing Live Video on victor unified client from a primary NVR and the primary NVR fails, the secondary NVR will automatically take over the connection to view live video. The victor unified client will timeout and retry playing live video from the virtual IP address. victor unified client will automatically reconnect to the camera's live video streams to view live video.

Note:
If a search and retrieve is in progress when a primary NVR fails, the search will not be completed successfully.

Events

During Failover mode events will be sent from the secondary NVR on behalf of the primary NVR, these events include video loss, motion detection events, video intelligence events, dry contact events and so on. These events will be displayed within victor unified client as if they have been sent by the primary NVR. You can use victor client to view the video that is associated with these events.

When Failover mode is active the secondary NVR assumes the virtual IP address of the failed primary NVR.

The victor unified client will use the virtual IP address to receive events from the secondary NVR. When the primary NVR is active and generates an event, it sends the event to victor unified client. When Failover mode is active, media-related events will be sent by the secondary NVR providing a seamless appearance in the victor unified client. Events will appear as if they have been received from the primary NVR at all times, even when failover mode is active.

When you add a secondary NVR to victor unified client as a recorder, you should add it by a static IP address assigned to its admin network. victor unified client will receive events from the secondary NVR via its static IP address. Whether the secondary NVR is in failover mode or monitor mode, it will send unit-related events to victor unified client using its static IP address. Adding your secondary NVR in this manner will enable you to monitor its health using the Health Dashboard feature of victor unified client. For further information on this feature refer to the victor unified client User Guide.

Backup/Restore

A backup of a secondary NVR can take place while monitoring or while active for a failed NVR. Backups created will only contain information about the secondary NVR and any information about any primary NVRs will not be backed up.

Upgrade Considerations

Failover functionality is only available when software version compatibility is satisfied i.e. both the primary and secondary NVRs have the same version of software installed.

It is recommended that you should upgrade all NVR(s) in the same maintenance window when a Failover system is present to ensure the time period without failover redundancy is minimized.

Procedure 8-1
Upgrading NVRs when Failover is Enabled

Step	Action
1	Disable failover monitoring on your primary NVR.
2	Upgrade your primary NVR.
3	Begin upgrading your secondary NVRs. When a secondary NVR has been upgraded, failover monitoring can be re-enabled. **Note:** Security Configuration > Web server configuration (i.e. HTTP and HTTPS or HTTPS only) must be applied identically on the primary NVR and on all the secondary NVRs on its active monitoring list for failover to function correctly.

- End -

Configure Failover Mode for an NVR

An NVR that is going to be used as a secondary NVR must be installed and configured in the same way as you would for a primary NVR. You need to configure media folders and storage sets. It is important to note when you are configuring storage for a secondary NVR, the storage configuration must be able to support recording of any camera configurations set up on any of the primary NVRs it is monitoring.

Note:
For seamless playback on victor unified client the primary and secondary NVRs must all share the same username and password.

The secondary NVR must have at least the same processing power as the largest primary NVR it is protecting and must be licensed for at least as many cameras as the largest associated primary NVR.

For VideoEdge Hybrid Appliances, the secondary NVR must have at least as many analog inputs as the largest primary NVR.

The network connection of the secondary NVR should have the same capability as the network connection from the primary NVRs to the client. If, for example, the secondary NVR is connected through a lower bandwidth connection than the primary NVR, you will notice a difference in performance when the secondary NVR is active if the primary NVR fails.

Failover Advanced Configuration

You can edit the default Failover Advanced configuration settings. The Failover Advanced configuration settings dictate how often the secondary NVR polls the primary NVR to confirm its current state.

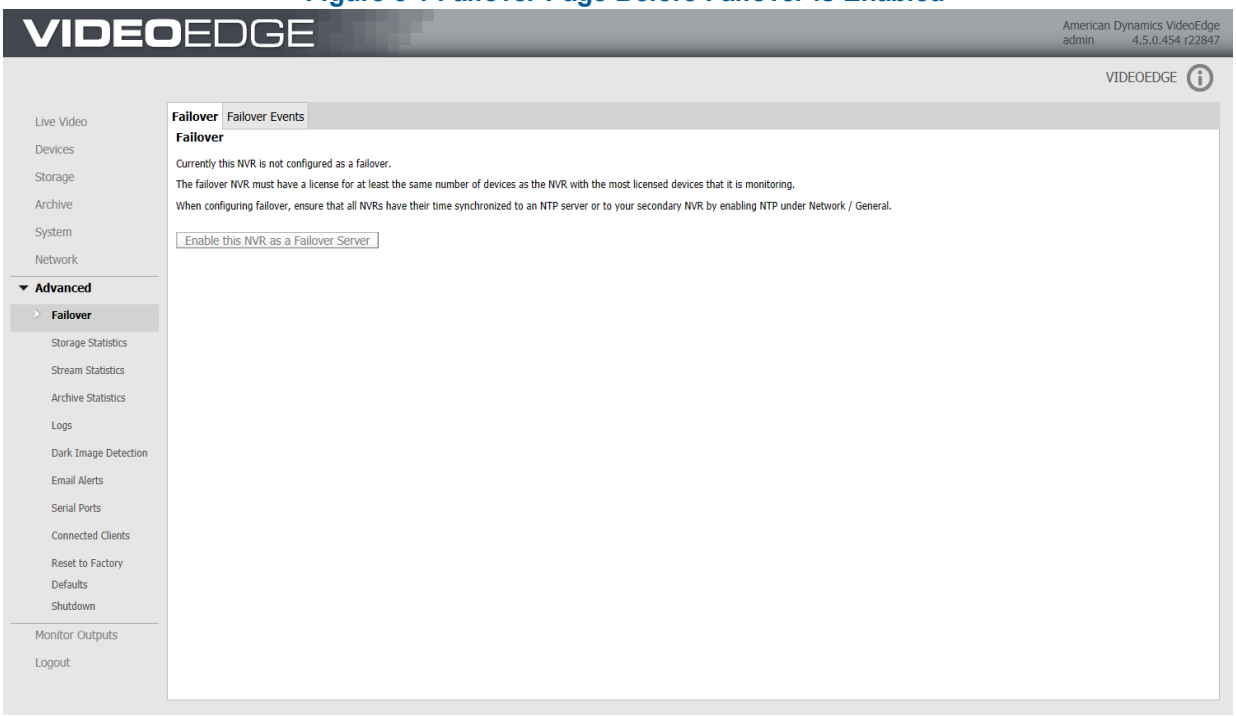
There are three parameters which can be configured:

- **Polling Interval** - This is how often the secondary NVR checks the primary NVR. The Polling Interval has a default of 10, this means the secondary NVR will check the primary NVR(s) every 10 seconds.
- **Retry Count** - This is the number of polling failures until the primary NVR is considered to be inoperable and Failover should begin. The Retry Count has a default of 3, this means the secondary NVR will try 3 times to check the status of the primary NVR before failover is initiated.
- **Config Update Interval** -This is the interval of how often the secondary NVR downloads the primary NVRs' configuration. The Config Update Interval has a default value of 60, this means the secondary NVR will check the configuration of the primary NVR(s) every 60 seconds.

Caution

The default settings for the Failover Parameters are recommended to provide the reliable operation of the Failover function. Depending on the levels of traffic on your network you can try alternative settings. If the secondary NVR fails to receive responses from the primary NVRs on the network (i.e. due to network traffic), this may result in failover triggering unnecessarily.

Figure 8-1 Failover Page Before Failover is Enabled



Adding a Primary NVR for Monitoring to the Secondary NVR

Primary NVRs can be added to the secondary NVR's server monitoring list using the Failover Page.

Note:
A primary NVR can only be monitored by one secondary NVR at any time.

Procedure 8-2
Adding a Primary NVR for Monitoring to the Secondary NVR

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Click **Enable this NVR as a Failover Server**.
4	Wait 1 minute.
5	Click **Add New Server**. An editing form opens.
6	Enter details of the primary NVR you want the secondary NVR to monitor. a Enter the server's IP Address into the **Server** field. b Enter a **Virtual IP address** for the server.

Note:
The Virtual IP address must belong to the management interface subnet on the secondary NVR.

c Enter the primary NVR's **Username**.

d Enter the primary NVR's **Password**.

Note:
Primary NVR(s) being monitored by a secondary NVR should all share the same user credentials.

e Enter the IP Address of the primary NVR's camera network in the **Camera N/W IP** field.

f To enable Failover monitoring of the primary NVR select the **Enabled** checkbox.

(Optional) To view, search and retrieve video on victor unified client across on WAN also complete the following steps:

g Enter the server's **WAN IP** address.

h Enter the server's **WAN HTTP Port**.

i Enter the server's **WAN Streaming Port**.

j Enter a virtual WAN HTTP Port in the **Virtual WAN HTTP Port** field.

k Enter a virtual WAN Streaming Port in the **Virtual WAN Streaming Port** field.

7 Click **Apply**.

The NVR is added to the server monitoring list.

8 (Optional) Repeat Steps 5 to 7 to add another NVR to monitor.

- End -

Configuring Failover Parameters

Failover Parameters can be configured using the Advanced page.

Procedure 8-3
Configuring Failover Parameters

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Select the **Advanced** tab.
4	Edit the required Failover parameters: a **Polling Interval** - Click Edit, enter the interval time in seconds and click **Save**. b **Retry Count** - Click Edit, enter the retry count and click **Save**. c **Config Update Interval** - Click Edit, enter the interval time in seconds and click **Save**.

- End -

Terminating Failover Mode When Primary NVR is Operational

After you have recovered the failed primary NVR, it will remain in an standby state until the secondary NVR failover mode is terminated.

When you terminate Failover mode on the secondary NVR, it returns to monitoring the servers in the monitoring list.

Caution

To terminate failover mode for a primary NVR you must terminate failover from the secondary NVR's Administration Interface, and not from the Administration Interface of any of the primary NVR.

Procedure 8-4
Terminating Failover Mode

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Click **Terminate Failover**. The secondary NVR returns to monitoring the server monitoring list.

- End -

Starting and Stopping Server Monitoring

Monitoring of primary NVRs which have been added to the secondary NVR's server monitoring list can be started and stopped using the Failover Page.

Procedure 8-5
Starting and Stopping Server Monitoring

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Select the checkbox of the primary NVR(s) that you want to start or stop monitoring.
4	Click **Monitor Server(s)** to start monitoring the selected primary NVR(s). Or Click **Stop Monitoring Server(s)** to stop monitoring the selected primary NVR(s).

- End -

Editing Primary NVR Monitoring Settings in the Server Monitoring List

Primary NVR monitoring settings can be edited in the server monitoring list on the Failover page.

Procedure 8-6
Editing Primary NVR Monitoring Settings in the Server Monitoring List

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Click **Edit**. An editing form opens.
4	Enter details of the primary NVR you want the secondary NVR to monitor. a Enter the server's IP Address into the **Server** field. b Enter a **Virtual IP address** for the server. **Note:** If you change the Virtual IP address you should modify the NVR's IP address in victor unified client. Modifying the address allows you to keep any configured tours, salvos and event actions you have configured for the NVR in the unified client. c Enter the primary NVR's **Username**. d Enter the primary NVR's **Password**. **Note:** Primary NVR(s) being monitored by a secondary NVR should all share the same user credentials. e Enter the IP Address of the primary NVR's camera network in the **Camera N/W IP** field. f To enable Failover monitoring of the primary NVR select the **Enabled** checkbox. (Optional) To view, search and retrieve video on victor unified client across on WAN also complete the following steps: g Enter the server's **WAN IP** address. h Enter the server's **WAN HTTP Port**. i Enter the server's **WAN Streaming Port**. j Enter a virtual WAN HTTP Port in the **Virtual WAN HTTP Port** field. k Enter a virtual WAN Streaming Port in the **Virtual WAN Streaming Port** field.
5	Click **Apply**.

- End -

Removing Primary NVRs from the Server Monitoring List

Primary NVRs can be removed from the server monitoring list on the Failover page.

Procedure 8-7
Removing Primary NVRs from the Server Monitoring List

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Select the checkbox of the primary NVR(s) that you want to remove from the server monitoring list. **Note:** The primary NVR(s) are listed by their static IP address.
4	Click **Remove Server(s)**.

- End -

Testing Failover on the Secondary NVR

The secondary NVR needs to be tested after configuration to ensure it is capable of assuming the role of any NVR that it is protecting when it goes into Failover mode. Testing can be achieved by initiating failover.

Procedure 8-8
Testing the Secondary NVR

Step	Action
1	Using the Administration Interface of a primary NVR, reboot the NVR using the Shutdown page. As the primary NVR reboots the secondary NVR no longer receives a response when polling the primary.
2	In the Administration Interface of the secondary NVR select **Advanced**.
3	Select **Failover**. The Failover page opens.
4	If the secondary NVR has successfully assumed the role of the primary NVR the Failover page will display the statement '**Currently the NVR is active for server <Primary NVR's IP address>**'.
5	Click **Terminate Failover** on the Failover page of the secondary NVR to resume server monitoring. The primary NVR will take over from the secondary NVR.

- End -

If Failover Doesn't Occur

If Failover doesn't occur ensure the following are set up as required:

- The secondary NVR is suitably license to support the highest licensed primary NVR on its server monitoring list.
- The cabling between primary and secondary NVRs is connected securely and correctly.
- Failover settings are configured correctly.
- The secondary NVR is off suitable specification to take over services for each primary NVR it monitors.

Failover Events Report

The occurrences and timing of Failover events can be queried using the Failover Events page on either a primary or secondary NVR.

Note:
Times are displayed in UTC.

Procedure 8-9
Displaying Failover Events

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Select the **Failover Events** tab.
4	Select the Virtual IP address you want to query from the **Virtual IP Address** dropdown list. **Note:** To query all virtual IP addresses which have been monitored by a secondary, select ANY from the dropdown list. When using the Failover Events feature on a Primary NVR only failover events relating to that primary will be displayed.
5	Select the **Start Date/Time** and the **End Date/Time** to search a time range for Failover Events. Select the current value and update the date and time as required. Enter the date and time in the field in the following format; **YYYY/MM/DD Hours:Minutes:Seconds**, for example 2013/04/01 12:30:30. Or a Click on the current value. The Calendar opens b Select the date from the calendar. c Use the sliders to adjust the time. **Note:** Time must be entered in 24 hour format. d Click **Done**.
6	Click **Get Failover Events**. All Failover Events within the configured time range display in the table

- End -

Disabling the Failover Mode on an NVR

Failover mode on a secondary NVR can be disabled allowing an NVR to be used again as a dedicated recorder.

Caution

To disable failover mode for an NVR you must disable it from the secondary NVR's Administration Interface, and not

from the interface of any of the monitored primary NVRs. Prior to disabling Failover mode on an active secondary NVR you must terminate the failover.

Procedure 8-10
Disabling Failover Mode

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Failover**. The Failover page opens.
3	Select the **Disable** tab.
4	Click **Disable this NVR as a Failover Server**.

- End -

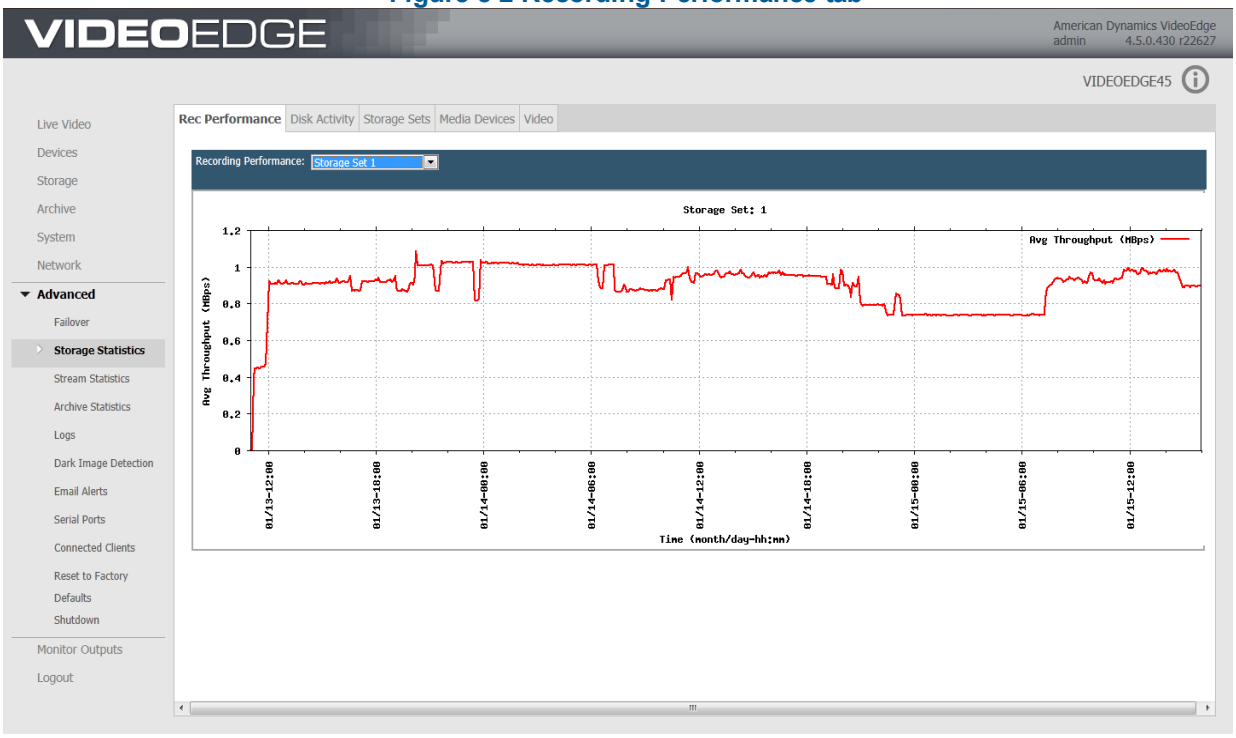
Storage Statistics

The Storage Statistics menu item allows you to view statistical information for Recording Performance, Disk Activity, Storage Sets, Media Devices and Video.

Recording Performance

The Recording Performance tab contains a graph displaying the average throughput over time for a selected storage set.

Figure 8-2 Recording Performance tab



Procedure 8-11
Viewing the Recording Performance Statistics

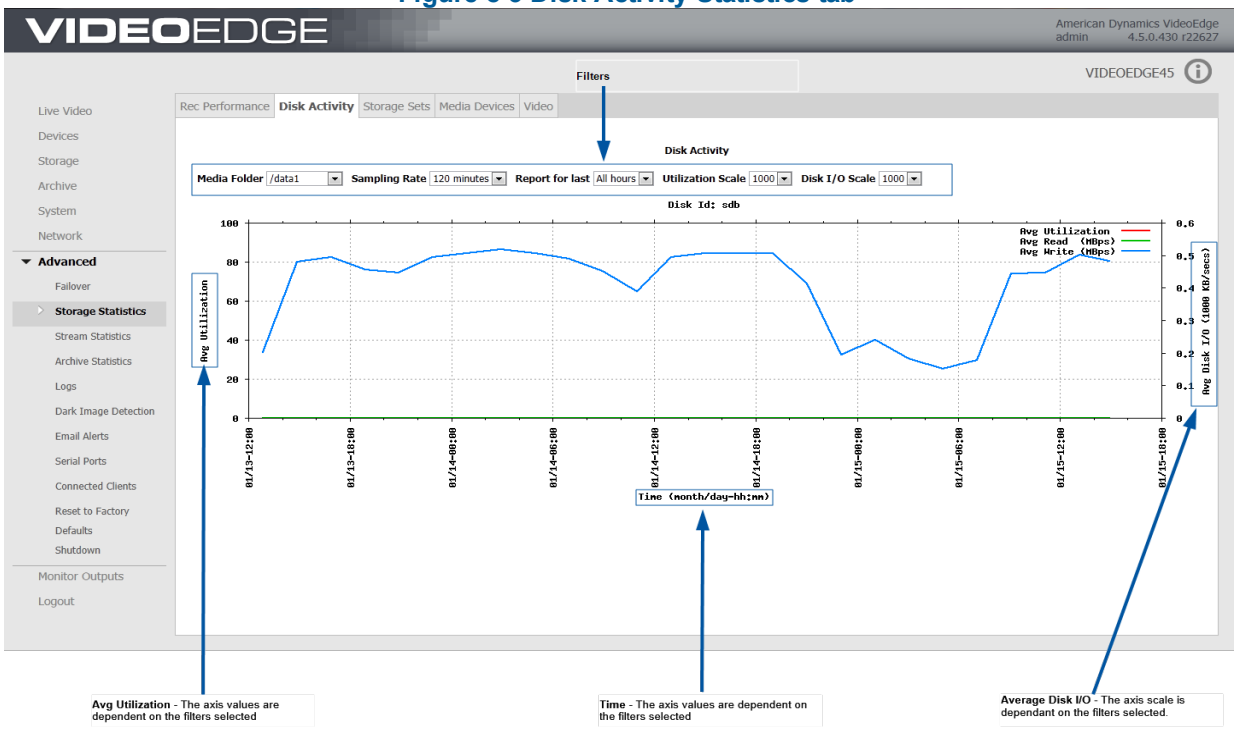
Step	Action
1	Select **Advanced** from the main menu.
2	Select **Storage Statistics**. The Rec Performance tab opens.
3	Select the storage set you want to view the recording performance for from the **Recording Performance** dropdown list. The graph updates displaying details for the selected storage set.

- End -

Disk Activity

The Disk Activity tab contains a graph outlining the disk activity for a specified media folder over a specified period of time. The graph can be customized by selecting the required filters. There are three values the graph depicts. The Average Utilization (red), the Average Read (green) and the Average Write (blue) over the time period selected.

Figure 8-3 Disk Activity Statistics tab



Procedure 8-12
Filtering the Disk Activity Graph

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Storage Statistics**. The Rec Performance tab opens.
3	Select the **Disk Activity** tab.
4	Select the **Media Folder** you want the graph to display disk activity for from the dropdown.
5	Select the required **Sampling Rate** from the dropdown. You can select ranges between 1 minute and 120 minutes.
6	Choose the number of hours you want the graph to display disk activity for. Select this from the **Report for last** dropdown.
7	Select the **Utilization Scale** from the dropdown.
8	Select the **Disk I/O Scale** from the dropdown. The graph adjusts to display the disk activity as per the filters selected.

- End -

Storage Set Statistics

The Storage Set tab contains statistics for the total amount of storage available in each storage set. This is the combined storage available from all storage devices assigned to the storage set and does not contain information on individual device statistics. The storage set section also contains statistics for each camera assigned to each storage set.

Figure 8-4 Storage Statistics tab

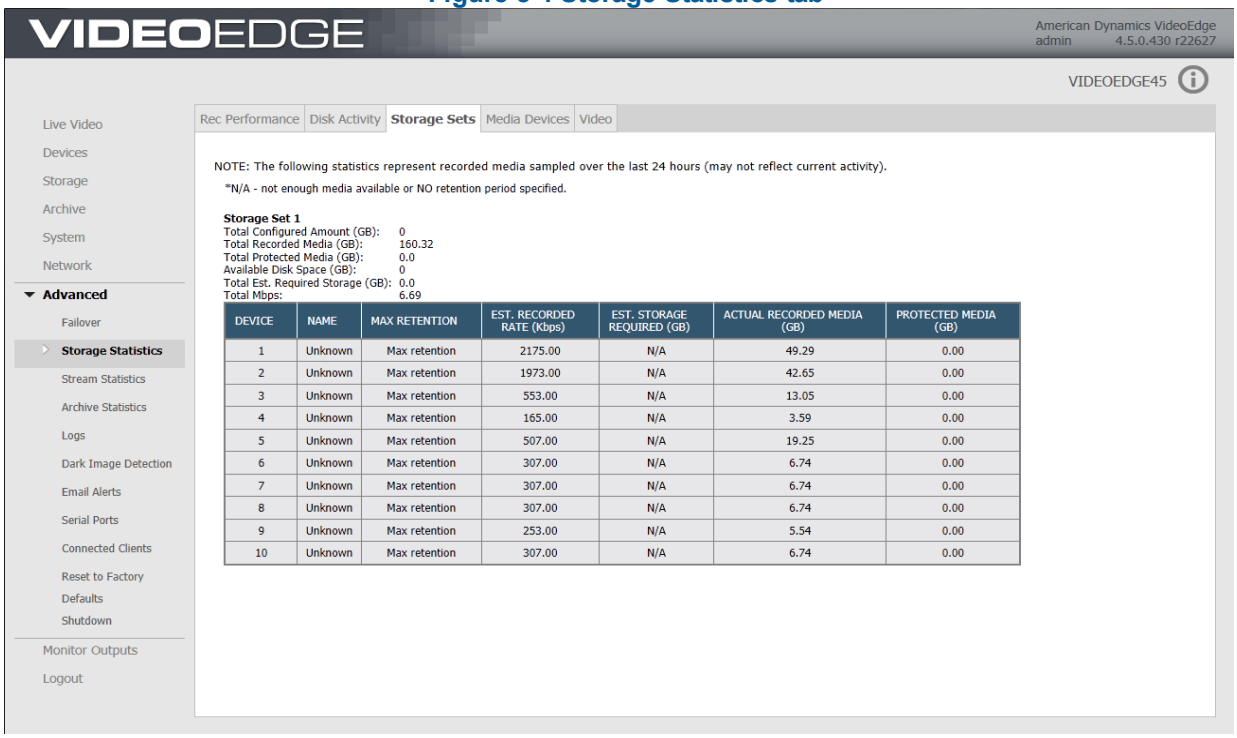

VIDEOEDGE
American Dynamics VideoEdge
admin 4.5.0.430 r22627
VIDEOEDGE45
Live Video
Devices
Storage
Archive
System
Network
Advanced
Failover
Storage Statistics
Stream Statistics
Archive Statistics
Logs
Dark Image Detection
Email Alerts
Serial Ports
Connected Clients
Reset to Factory Defaults
Shutdown
Monitor Outputs
Logout
Rec Performance
Disk Activity
Storage Sets
Media Devices
Video
NOTE: The following statistics represent recorded media sampled over the last 24 hours (may not reflect current activity).
*N/A - not enough media available or NO retention period specified.
Storage Set 1
Total Configured Amount (GB): 0
Total Recorded Media (GB): 160.32
Total Protected Media (GB): 0.0
Available Disk Space (GB): 0
Total Est. Required Storage (GB): 0.0
Total Mbps: 6.69
DEVICE | NAME | MAX RETENTION | EST. RECORDED RATE (Kbps) | EST. STORAGE REQUIRED (GB) | ACTUAL RECORDED MEDIA (GB) | PROTECTED MEDIA (GB)
1 | Unknown | Max retention | 2175.00 | N/A | 49.29 | 0.00
2 | Unknown | Max retention | 1973.00 | N/A | 42.65 | 0.00
3 | Unknown | Max retention | 553.00 | N/A | 13.05 | 0.00
4 | Unknown | Max retention | 165.00 | N/A | 3.59 | 0.00
5 | Unknown | Max retention | 507.00 | N/A | 19.25 | 0.00
6 | Unknown | Max retention | 307.00 | N/A | 6.74 | 0.00
7 | Unknown | Max retention | 307.00 | N/A | 6.74 | 0.00
8 | Unknown | Max retention | 307.00 | N/A | 6.74 | 0.00
9 | Unknown | Max retention | 253.00 | N/A | 5.54 | 0.00
10 | Unknown | Max retention | 307.00 | N/A | 6.74 | 0.00

Table 8-1 Storage Set Statistics

Field		Description
Storage	Storage Total Configured Amount (GB)	Total configured amount of storage that will be used in this storage set.
	Total Recorded Media (GB)	Current total amount of recorded media in this storage set.
	Total Protected Media (GB)	Current total amount of protected media in this storage set.
	Available Disk Space (GB)	Total available disk space in this storage set.
	Total Est. Required Storage (GB)	If a retention period is defined on any camera this will show the total required storage needed to support those retention values, otherwise 0.0.
	Total Mbps	Current calculated Mbps for this storage set.

Field		Description
Device	Device	Device Input number.
	Name	Device Name
	Max Retention	Current configured retention period.
	Est. Record Rate (Kbps)	Current Kbps over last 24 hour period (if less than 24 hours will display N/A)
	Est. Storage Required (GB)	If a retention period is specified, this will indicate the required storage needed to support that retention period.
	Actual Recorded Media (GB)	Actual amount of recorded media for this camera in this storage set.
	Protected Media (GB)	Amount of current protected media for this camera in this storage set.

Note:
If a camera has stored media in a storage set but has now been assigned to another or has been deleted, the camera number will be displayed followed by **. This indicates the camera is not currently configured in this storage set. The Max Retention, Recorded Rate (Kbps) and Est. Storage Required (GB) will display as **Unknown**. The Actual Recorded Media (GB) and Protected Media (GB) will display their values.

Media Device Statistics

The Devices tab contains storage statistics per individual storage device.

Figure 8-5 Storage Statistics per Media Device

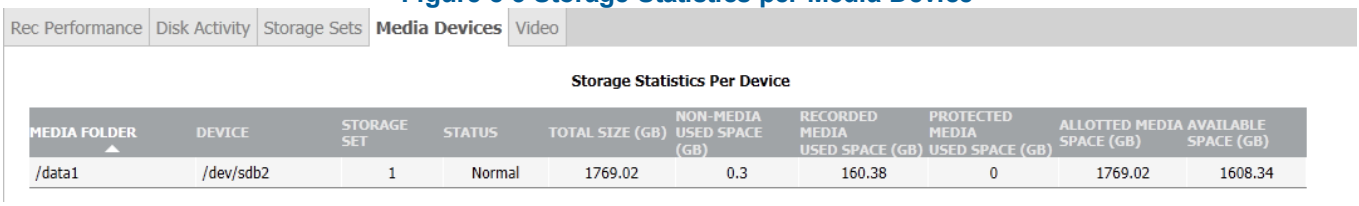


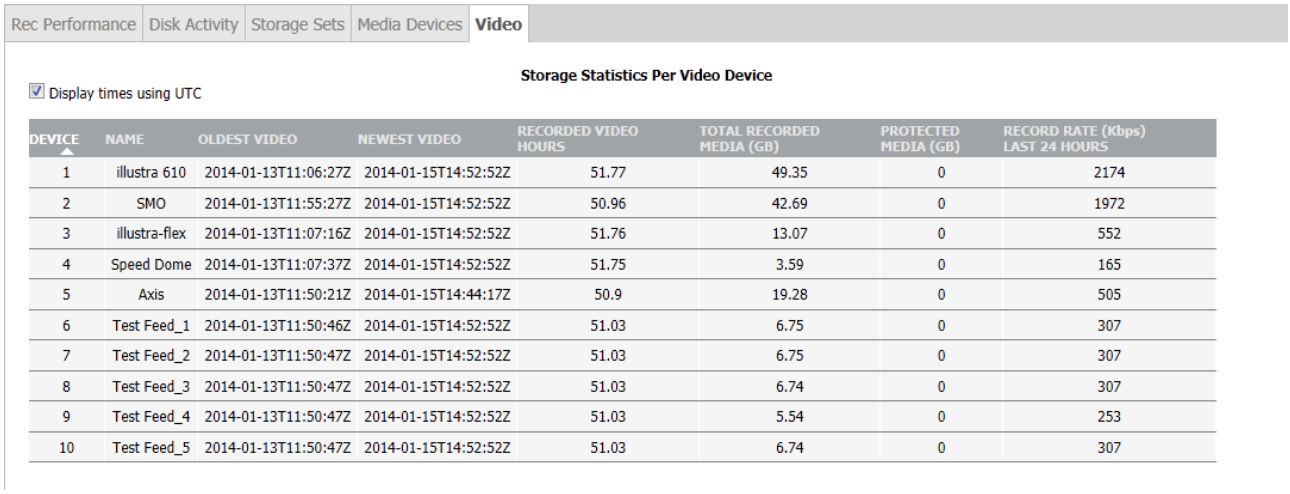
Table 8-2 Storage Device Statistics

Field	Description
Media Folder	Name of the media folder used by storage.
Device	Associated device on which this media folder is located.
Storage Set	Storage set this media folder is assigned to.
Status	Current Status of this folder (Normal, Degraded and so on).
Total Size (GB)	Total size of this device.
Non-Media Used Space (GB)	Total amount of space used by non NVR media files (if any) on this device.
Recorded Media Used Space (GB)	Total amount of space used for NVR recorded media at this time.
Protected Media Used Space (GB)	Total amount of space used for protected media on this device.
Allotted Media Space (GB)	Configured amount to use for storage on this device.
Available Space (GB)	Current total available unused space on this device.

Storage Statistics per Video Device

The Video tab details the storage statistics for each camera.

Figure 8-6 Storage Statistics per Video Device



DEVICE	NAME	OLDEST VIDEO	NEWEST VIDEO	RECORDED VIDEO HOURS	TOTAL RECORDED MEDIA (GB)	PROTECTED MEDIA (GB)	RECORD RATE (Kbps) LAST 24 HOURS
1	illustra 610	2014-01-13T11:06:27Z	2014-01-15T14:52:52Z	51.77	49.35	0	2174
2	SMO	2014-01-13T11:55:27Z	2014-01-15T14:52:52Z	50.96	42.69	0	1972
3	illustra-flex	2014-01-13T11:07:16Z	2014-01-15T14:52:52Z	51.76	13.07	0	552
4	Speed Dome	2014-01-13T11:07:37Z	2014-01-15T14:52:52Z	51.75	3.59	0	165
5	Axis	2014-01-13T11:50:21Z	2014-01-15T14:44:17Z	50.9	19.28	0	505
6	Test Feed_1	2014-01-13T11:50:46Z	2014-01-15T14:52:52Z	51.03	6.75	0	307
7	Test Feed_2	2014-01-13T11:50:47Z	2014-01-15T14:52:52Z	51.03	6.75	0	307
8	Test Feed_3	2014-01-13T11:50:47Z	2014-01-15T14:52:52Z	51.03	6.74	0	307
9	Test Feed_4	2014-01-13T11:50:47Z	2014-01-15T14:52:52Z	51.03	5.54	0	253
10	Test Feed_5	2014-01-13T11:50:47Z	2014-01-15T14:52:52Z	51.03	6.74	0	307

Table 8-3 Video Device Storage Statistics

Field	Description
Device	Input number.
Name	Device Name.
Oldest Video	Time of oldest video for this camera across all storage sets.
Newest Video	Time of newest video for this camera across all storage sets.
Recorded Video Hours	Total number of recorded video hours for this camera across all storage sets.
Total Recorded Media (GB)	Total amount of recorded media for this camera across all storage sets.
Protected Media (GB)	Total amount of protected media for this camera across all storage sets.
Record Rate (Kbps) Last 24 Hours	Record rate for this camera over the last 24 hours (N/A -if less than 24 hours of data).

Procedure 8-13
Viewing Storage Statistics

Step	Action
1	Select **Advanced** from the main menu.
2	To view storage set statistics select **Storage Sets** tab. Or To view device statistics select **Media Device** tab. Or To view camera statistics select **Video** tab.

The required statistics are displayed.

- End -

Stream Statistics

You can use the Stream Statistics menu item to view statistics on video recording, audio recording and an overview of streaming settings on each device.

Video and Audio Recording Statistics

The Video and Audio Recording Statistics tabs display recording statistics for each device configured on the NVR. There is also a Totals summary table displaying recording statistics for the total of all devices on the NVR.

Figure 8-7 Recording Statistics Page

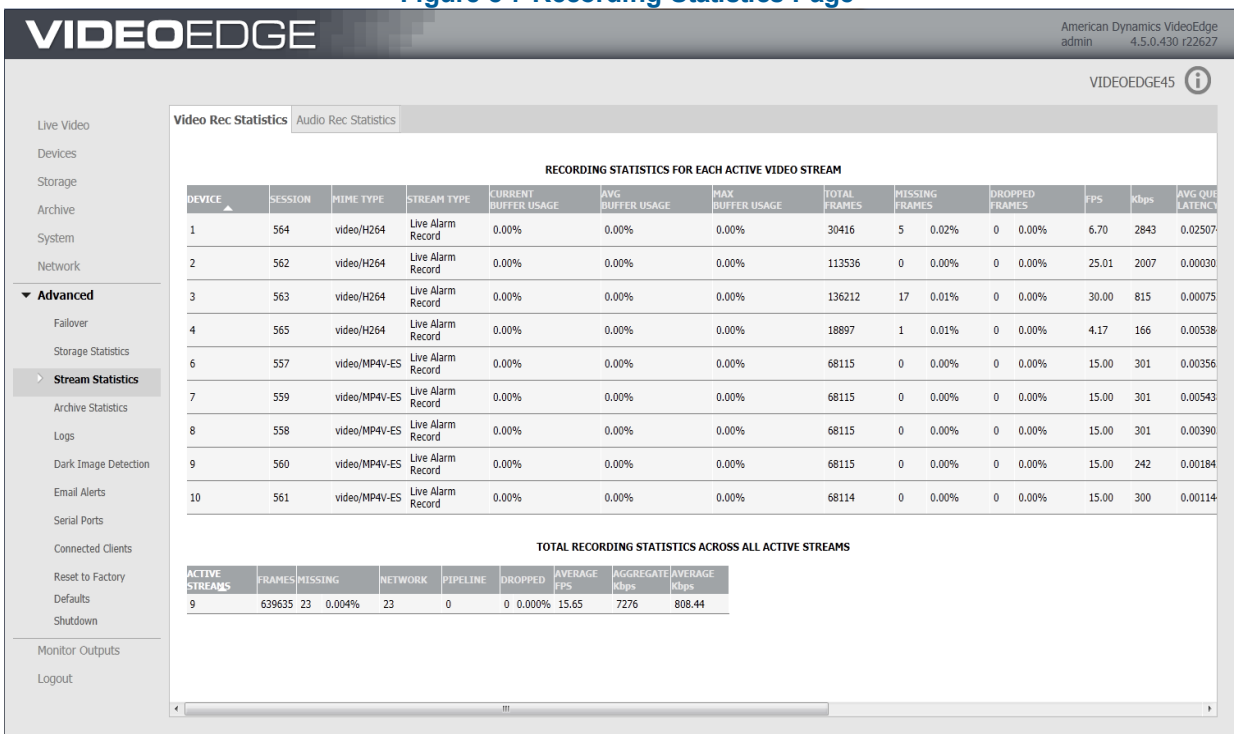


Table 8-4 Recording Statistics

Field	Descripton
Device	Device input number.
Session	Current active media database session ID associated with stream type for this camera (Note: there will be multiple sessions for the same camera depending on the stream types).
MIME Type	Provided details on codec of data recorded in session.
Stream Type	Indicates what type of stream recorded for this session, i.e. live, alarm, and or record.
Current Buffer Usage	Usage Current percent used of the internal frame buffer (will be 0% if no buffering is occurring, i.e. frames are being written to the disk as they are received).
Avg Buffer Usage	Average percent used of the internal frame buffer.
Max Buffer Usage	Maximum percent used of the internal frame buffer.

Field	Descripton
Total Frames/Packets	Total number of frames recorded for video devices or total number of packets recorded for audio devices in the session.
Missing Frames/Packets	Total number of missing frames for video devices or total number of missing packets for audio devices in the session/percent missing.
Dropped Frames/Packets	Total number of dropped frames for video devices or total number of dropped packets for audio devices in the session (frames/packets inserted into buffer, but the frames/packets were removed before being written due to buffer overflow).
FPS/PPS	Actual FPS recorded for this video device for this session or actual PPS recorded for this audio device for this session.
Kbps	Calculated Kbps of this device for this session.
Avg Queue Latency	Average time between when frame is received and when inserted into queue (seconds).
Avg Disk Latency	Average time from queue insertion to disk write (seconds).
Max Disk Latency	Maximum time from queue insertion to disk write (seconds).
Last Add	Time of last added frame in this session.
Last Drop or Miss	Time of last frame dropped/missed if applicable (N/A indicates no frame dropped/missed).

Table 8-5 Total Recording Statistics

Field	Description
Active Streams	Current total number of active streams.
Frames	Total number of frames for all devices.
Missing	Total number of missing frames across all devices.
Network	Total number of frames dropped between devices and NVR (lost over network).
Pipeline	Total number of frames dropped from buffer (inserted into buffer but not written).
Dropped	Total number of dropped frames across all devices/percent dropped of total frames.
Average FPS	Average FPS of all devices.
Aggregate Kbps	Aggregate Kbps across all devices.
Average Kbps	Average Kbps across all devices.

Procedure 8-14
Viewing the Video and Audio Recording Statistics

Step	Action
1	Select **Advanced** from the main menu.
2	Select **Stream Statistics**. The Rec Performance page opens.
3	Select the **Video Rec Statistics** tab.

The Video Recording Statistics page opens.

Or

Select the **Audio Rec Statistics** tab.

The Audio Recording Statistics page opens.

4 Details of these statistics are outlined in the Recording Statistics table or the Total Recording Statistics table.

- End -

Archive Statistics

You can use the Archiving Statistics menu item to view graphical representation of the Total throughput for archiving for your NVR and the Throughput per archive destination.

Procedure 8-15
Viewing Archiving Statistics

Step	Action
1	Select **Advanced**.
2	Select **Archive Statistics**. The Archive Statistics page opens.
3	You can display/hide the following items on the graphs using checkboxes. a Points b Lines c Write throughput d Read throughput e Write rate per archive f Read rate per archive
4	To zoom in, click and drag on the area you want to enlarge.
5	To zoom out, click **Zoom out**.

- End -

Logs

The NVR tracks important types of system events. You can view logs of the following:

- Administrative changes
- Camera alerts
- Changes to cameras
- System events (used by American Dynamics technical support)

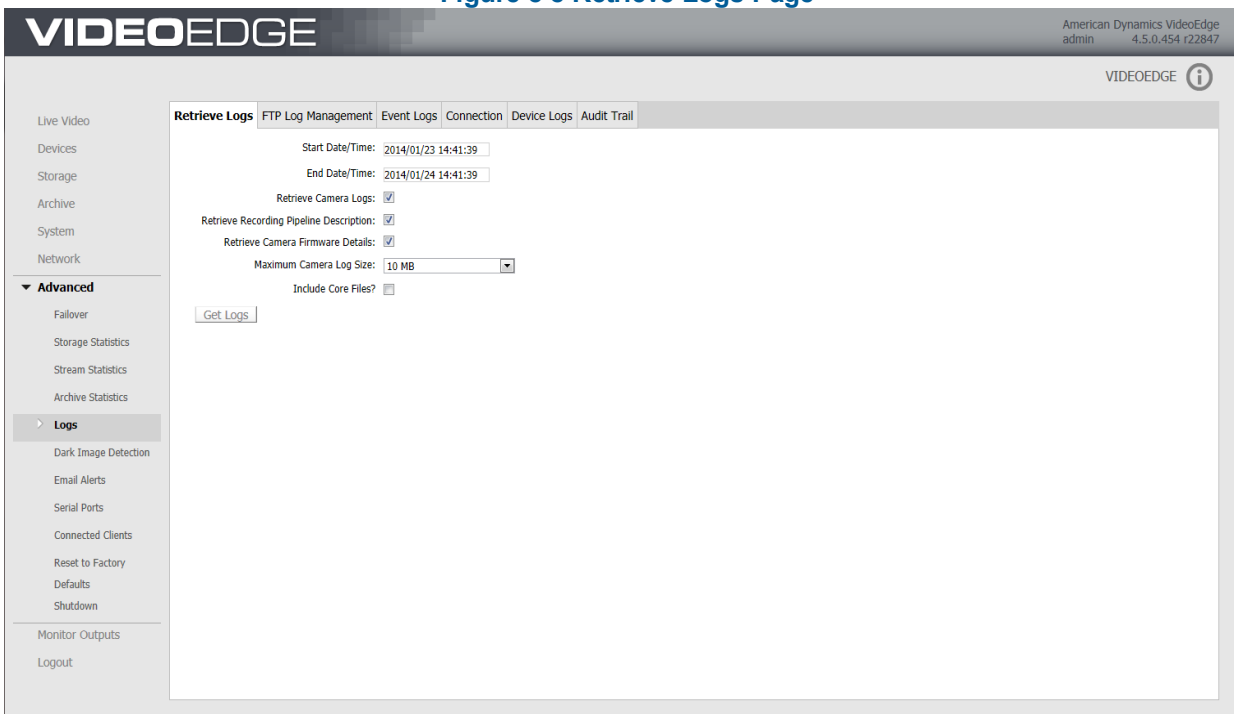
The Logs page provides access to the NVRs log settings, this allows you to retrieve logs, edit the FTP Log Management settings, filter searches for Events Logs, view Camera Connection Errors, Camera Logs and an Audit Trail.

Retrieving Logs

The Retrieve Logs page provides you the ability to customize the search criteria for retrieving log files. The editable criteria includes a date and time range, selection options for retrieving camera logs, recording pipeline descriptions, camera firmware details and core files. A dropdown also provides selectable maximum camera log sizes of; 1Mb, 5Mb, 10Mb, 25Mb and 50Mb.

The retrieved log file is in zipped format, it can either be opened as a temporary folder or saved local using the Windows file download window or other OS equivalent.

Figure 8-8 Retrieve Logs Page



Procedure 8-16
Retrieving Logs

Step	Action
1	Select **Advanced**.

2 Select **Logs**.

The Retrieve Logs page opens.

3 Type the Start Date/Time in the **Start Date/Time** text box.

Note:
Enter in the following format; Year/Month/Date Hours:Minutes:Seconds. For example for 1pm on 21st January 2012 would be **2012/01/21 13:00:00**.

Or

Select the Start Date/Time field and a calendar opens. You can use the calendar to select the date and use the sliders to adjust the time.

4 Type the End Date/Time in the **End Date/Time** text box in the same format described in step 3.

5 Select/deselect the **Retrieve Camera Logs** check box as required.

6 Select/deselect the **Retrieve Recording Pipeline Description** checkbox as required.

7 Select/deselect the **Retrieve Camera Firmware details** checkbox as required.

8 Using the **Maximum Camera Log Size** dropdown select the maximum camera log size.

9 Select/deselect the **Include Core Files** checkbox as required.

10 Click **Get Logs**.

11 When the File Download window displays Click **Open** or **Save**.

The Logs folder is now ready to be viewed.

- End -

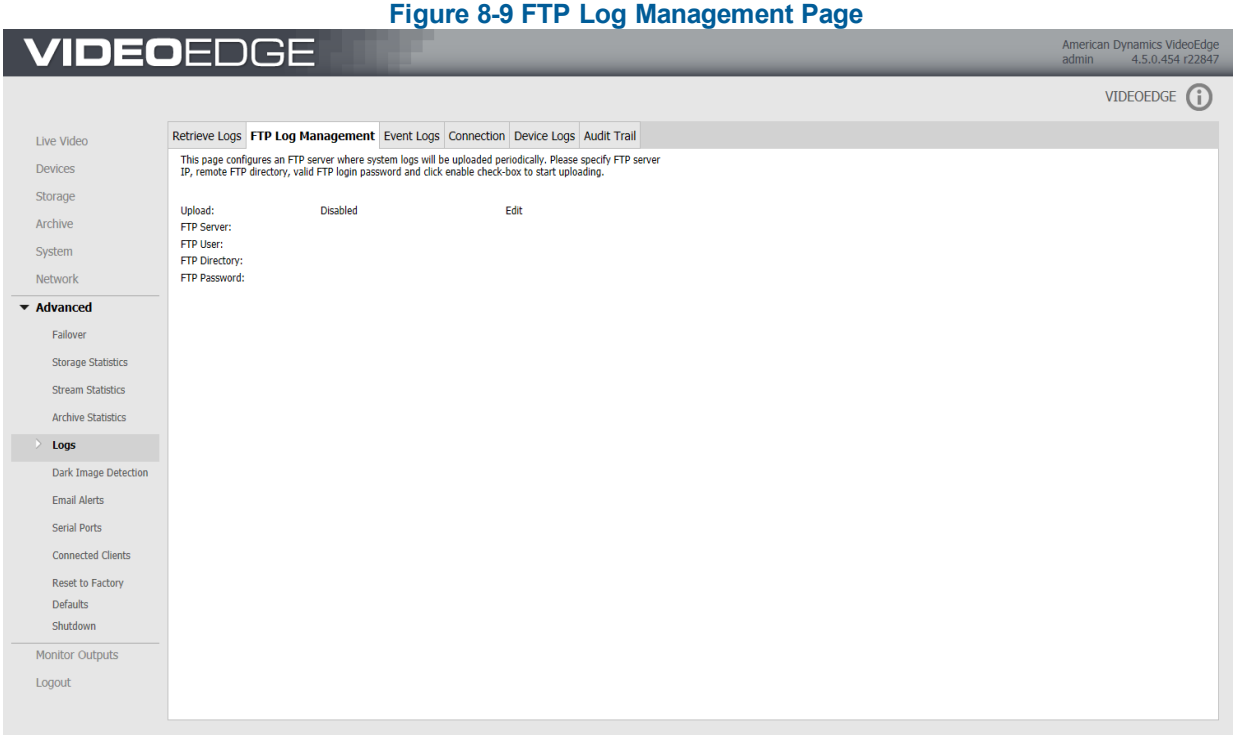
FTP Log Management

The FTP Log Management page allows you to configure FTP server settings where system logs will be uploaded periodically. The Event Log is rotated (all entries are cleared) when it is full. To preserve the Events Log this function should be configured and enabled.

Note:
Only syslog files are uploaded when using this feature.

The FTP Log Management page allows you to input the FTP server IP Address, FTP Username, remote FTP Directory and FTP Password. A valid Default Gateway must be assigned in the General Network Settings to use this feature.

Figure 8-9 FTP Log Management Page



Procedure 8-17
Editing Settings for the Log FTP Server

Step	Action
1	Select **Advanced**.
2	Select **Logs**.
3	Select the **FTP Log Management** tab. The FTP Log Management page opens.
4	Select **Edit**.
5	Select the **Enabled** option button to enable Event Log upload to the FTP Server.
6	Enter the IP Address in the **FTP Server** field.
7	Enter the username in the **FTP User** field.
8	Enter the directory in the **FTP Directory** field.
9	Enter the password in the **FTP Password** field.
10	Enter the password again in the **Confirm Password** field.
11	Click **Save**.

Note:
When FTP Log upload is enabled, a **Test Upload** button displays. This button can be used to verify the FTP server settings. A successful upload test will create a test file on the specified location of the FTP Server.

- End -

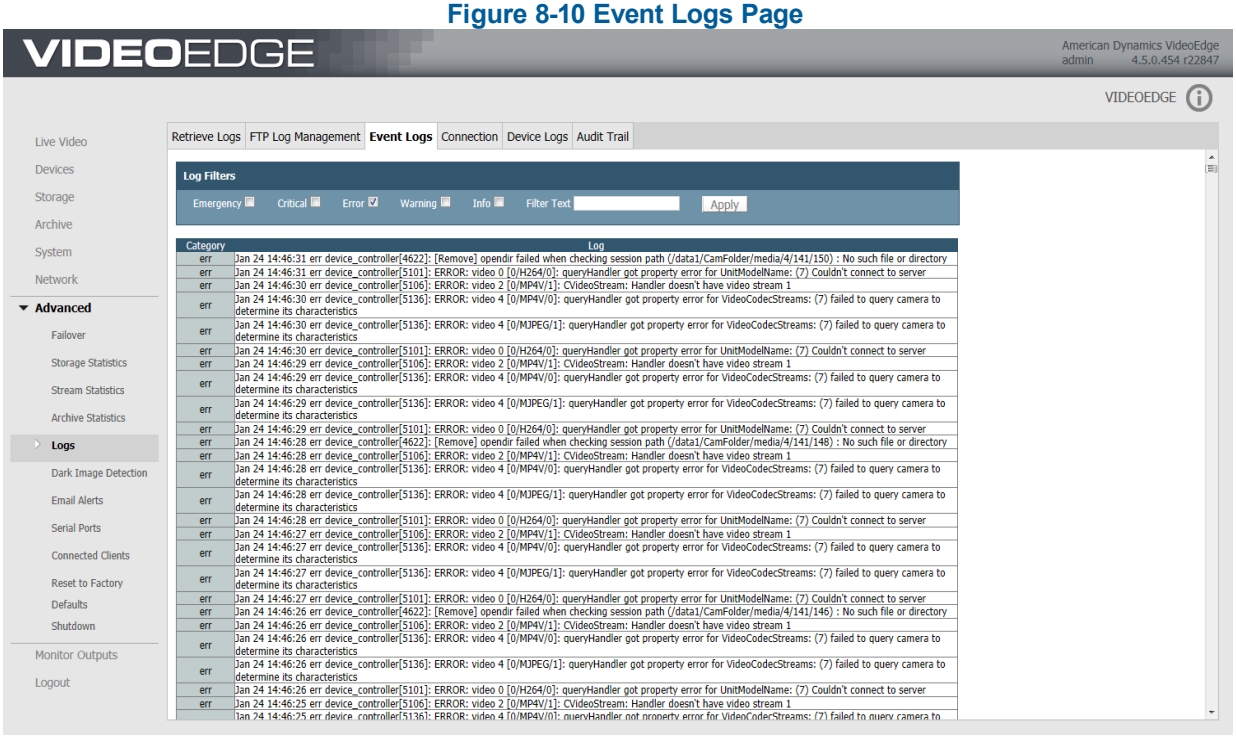
Event Logs

The Event Logs page is used primarily by American Dynamics technical support for troubleshooting. The Event Log shows informational and error-related events that have occurred on the NVR system.

When the Event Log is full, the file is rotated (all entries are cleared) and a new Event Log is started.

The Event Log page provides a filter feature. You can filter by the following criteria; Emergency, Critical, Error, Warning, Info and Filter Text.

Figure 8-10 Event Logs Page



Procedure 8-18
Viewing Event Logs

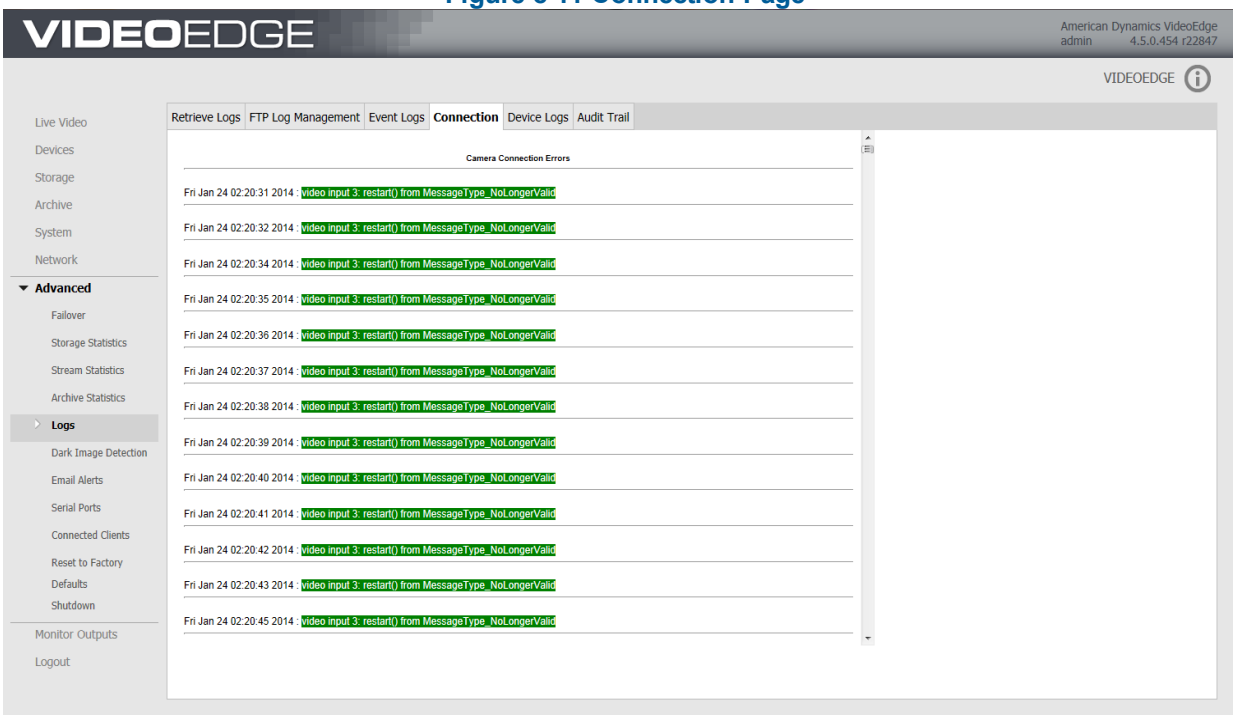
Step	Action
1	Select **Advanced**.
2	Select **Logs**.
3	Select the **Event Logs** tab. The Event Logs page opens.
4	To include emergency event logs, select the **Emergency** checkbox.
5	To include critical event logs, select the **Critical** checkbox.
6	To include error event logs, select the **Error** checkbox.
7	To include warning event logs, select the **Warning** checkbox.
8	To include info event logs, select the **Info** checkbox.
9	To include specific filter text, enter the desired filter text in the **Filter text** textbox.
10	Click **Apply**.

- End -

Camera Connection Errors

The Connection page displays the Camera Connection Errors that have occurred.

Figure 8-11 Connection Page


VIDEOEDGE
American Dynamics VideoEdge
admin 4.5.0.454 r22847
VIDEOEDGE
Live Video
Devices
Storage
Archive
System
Network
Advanced
Failover
Storage Statistics
Stream Statistics
Archive Statistics
Logs
Dark Image Detection
Email Alerts
Serial Ports
Connected Clients
Reset to Factory Defaults
Shutdown
Monitor Outputs
Logout
Retrieve Logs
FTP Log Management
Event Logs
Connection
Device Logs
Audit Trail
Camera Connection Errors
Fri Jan 24 02:20:31 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:32 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:34 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:35 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:36 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:37 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:38 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:39 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:40 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:41 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:42 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:43 2014 : video input 3: restart() from MessageType_NoLongerValid
Fri Jan 24 02:20:45 2014 : video input 3: restart() from MessageType_NoLongerValid

Procedure 8-19
Viewing Camera Connection Errors

Step	Action
1	Select **Advanced**.
2	Select **Logs**.
3	Select the **Connection** tab. The Connection page opens.

- End -

Device Logs

The Device Logs page provides information on camera reboots, changes to camera recording status, and the use of the Pan-Tilt-Zoom (PTZ) and other controls.

Figure 8-12 Device Logs Page

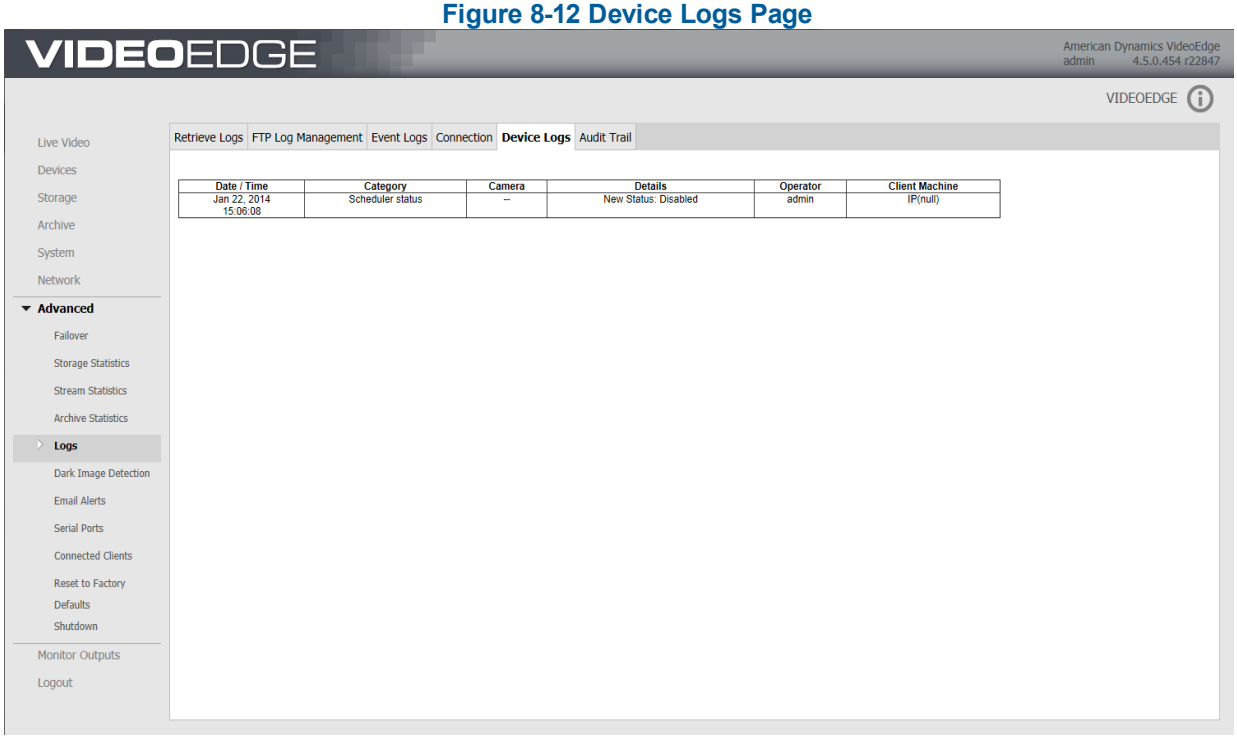


Table 8-6 Device Logs Definitions

Column	Description
Date/Time	Displays the Date and Time that the camera reported a change.
Category	Lists the type of action or change that occurred.
Camera	Lists the camera number, name and IP Address.
Details	Displays the details of the action or change that occurred.
Operator	Displays the name of the user who initiated the action.
Client Machine	Lists the IP Address of the client machine from which the user-initiated action originated.

Procedure 8-20
Viewing the Camera Logs

Step	Action
1	Select **Advanced**.
2	Select **Logs**.
3	Select the **Device Logs** tab. The Device Logs page opens.

- End -

Audit Trail

The Audit Trail page displays a log of system changes which have been made by a privileged user. The system changes which are logged in the Audit Trail are:

1 System Date and Time

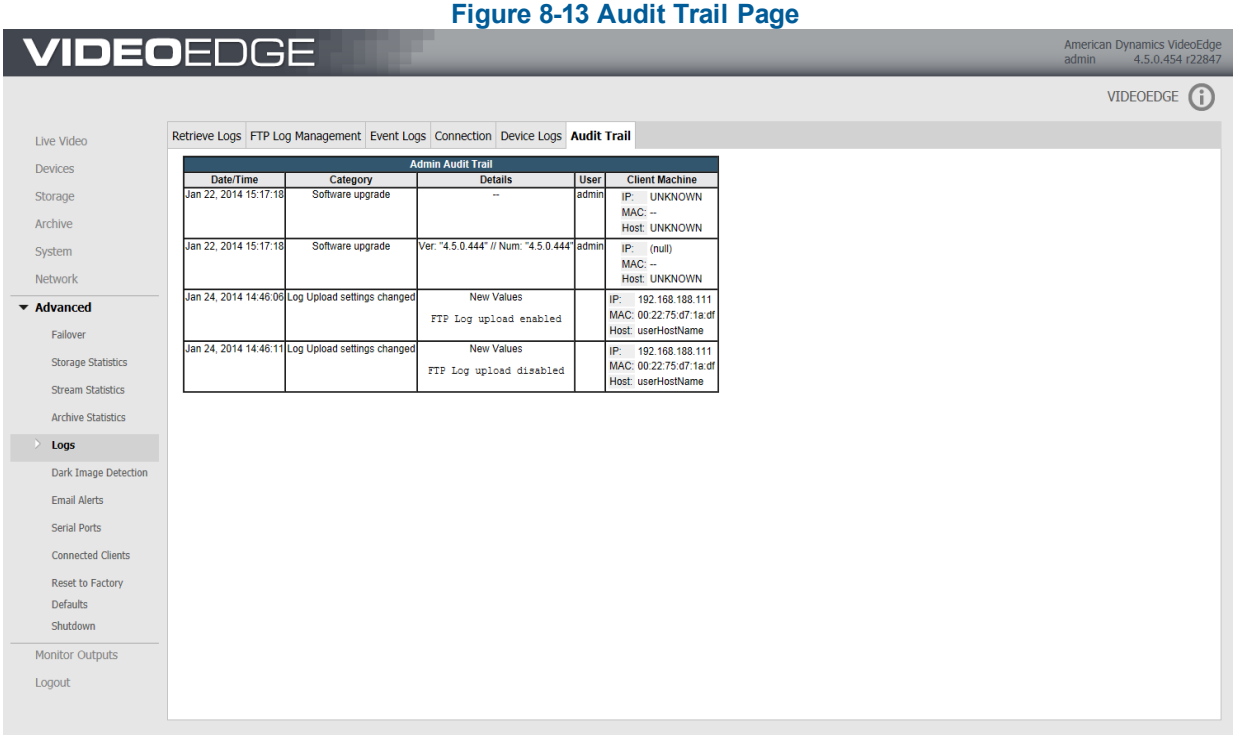
2 Software upgrade

3 FTP Log Management settings

4 User Login Passwords

5 Network Settings

Figure 8-13 Audit Trail Page



Procedure 8-21
Viewing the Audit Trail

Step	Action
1	Select **Advanced**.
2	Select **Logs**.
3	Select the **Audit Trail** tab. The Audit Trail page opens.

- End -

Image Detection

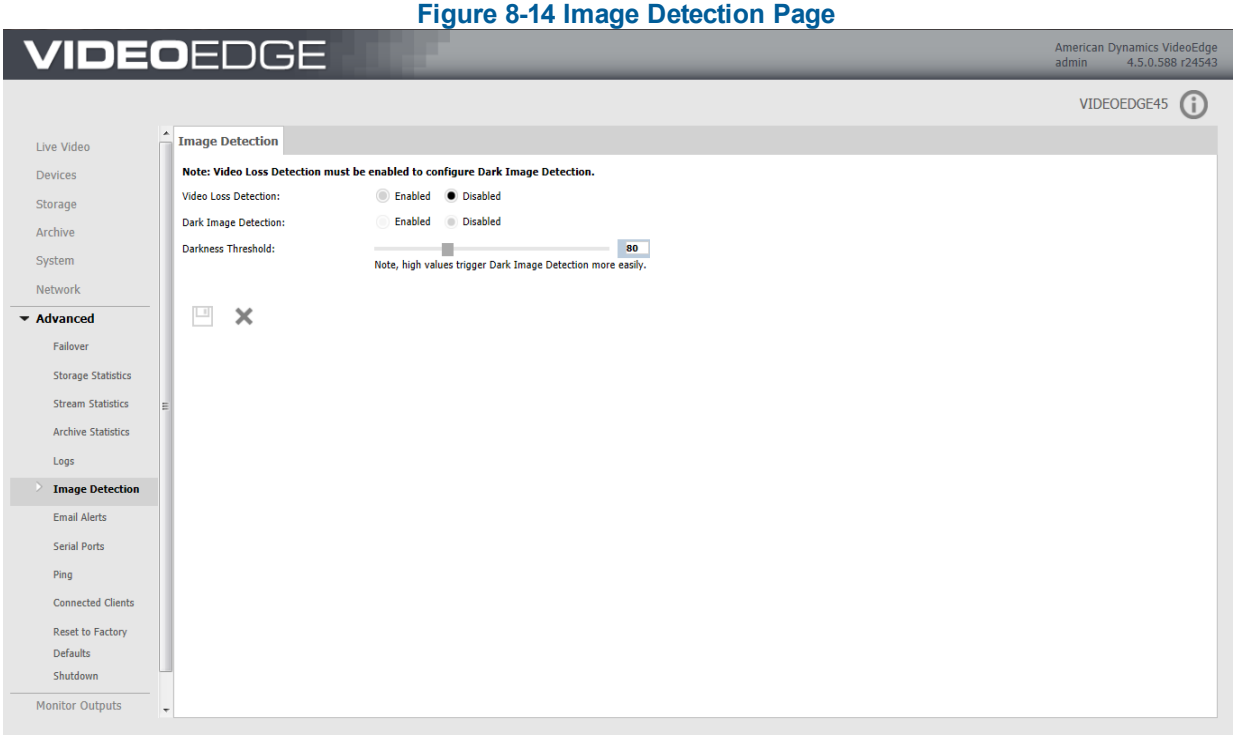
The NVR can perform a Image Detection test on every camera in the network. You can use this test to determine if the NVR has a camera that is recording a very dark, or potentially black video. The test runs for each camera once a minute, it counts the number of pixels with intensity values less than the Darkness threshold which is defined in the Dark Image Detection page. The Darkness threshold can be set from 1 (darkest) to 255 (brightest), with a default setting of 80.

For example, with a Darkness threshold setting of 80, a pixel with RGB values of 70, 70, 70 is considered dark, while a pixel with RGB values of 70, 70, 81 is not considered dark. If 90% of all pixels are dark (have intensities less than the threshold you have set), then a 'Video Loss' alert is activated.

You can also enable Camera Loss Detection. If the camera goes offline a 'Video Loss' alert is triggered.

In victor client use the Activity Log page to see if any cameras have generated any 'Video Loss' alert events.

Figure 8-14 Image Detection Page



Enable Image Detection

Before Image Detection can be enabled you must enable the Camera Loss Detection option. When dark image detection occurs, a "Video Loss" alert is activated. Both camera loss detection and dark image detection alerts can be viewed in the victor client Activity List or via the Reports feature.

Procedure 8-22
Enable Image Detection

Step	Action
1	Select **Advanced**.
2	Select **Image Detection**. The Image Detection page opens.

3	To enable Video Loss Detection, click the **Enabled** option button.
4	To enable Image Detection click the **Enabled** option button. The area behind the option buttons changes to yellow indicating a change has been made.
5	To edit the Darkness Threshold use the slider to select the **Darkness Threshold** value. The slider color changes to yellow indicating a change has been made.
6	Click **Save**. Confirmation messages display.

- End -

Enable/Disable Video Loss Detection

When video loss detection is enabled, a video loss alert is triggered when communication is lost between a camera and the NVR.

When video loss detection is disabled, a video loss alert will not be triggered and the Dark Image Detection feature cannot be enabled.

Procedure 8-23
Enabling/Disabling Video Loss Detection

Step	Action
1	Select **Advanced**.
2	Select **Image Detection**. The Image Detection page opens.
3	Click the **Enabled** option button to enable Video Loss Detection. Or Click the **Disabled** option button to disable Video Loss Detection The area behind the option buttons changes to yellow indicating a change has been made.
4	Click **Save**. A confirmation message displays.

- End -

Email Alerts

The Email Alerts page consists of the Email Alerts page and the Alert Logs page. Email Alerts can be setup in the NVR to send notifications to selected email addresses regarding several different categories.

The Alert Logs page is used to display all of the email alerts that have been transmitted.

Alert Category	Description
Archive Alert	Sent when the archive is unhealthy, the archive is falling behind, data deleted before being archived and when archive is nearing full.
Audio Malfunction	Sent when audio malfunctions occur.
Security Alerts	Sent when a user is temporarily and permanently locked out of their account.
Text Stream Alerts	Sent when user defined Text Stream exception rules are met.
System Alerts	All general system alerts not included in other categories.
Storage Alerts	Transmitted when storage is not healthy.
Storage Retention Alerts	Transmitted when storage capacity is almost reached.
Motion Detection Alerts	Generated by motion detection alerts. Does not include image attachments.
Video Intelligence Alerts	Generated by video intelligence alerts.
Camera Malfunction	Sent when a camera refuses to respond.
Reboot Notification	Sent when the system is rebooted.
Camera(s) Not Recording	Generated when recording does not occur on one or more cameras.
Blur Detection Alerts	Generated when a configured camera becomes out of focus.
Face Detection Alerts	Generated when a face is present in a camera's configured view.
No Storage Active on Unit	Generated when no storage can be activated.
Failed to Read Storage Config	Sent when storage configuration errors occur.
Failover Events	Sent when a failover is detected. The IP address of the NVR which has failed will be included.

Note:
In order to use the email notification feature, you must have the IP address of an SMTP switch or a mail server; ask your IT administrator for details.

Advance Preparation

Prior to configuring email alerts you must ensure that you have a valid Domain Name and Default Gateway configured in the network settings of the NVR network.

Procedure 8-24
Advance Preparation for Email Alerts

Step	Action
1	Select **Network**.
2	Select **General**. The Network General page opens.
3	To edit the **Domain Name** select the current value. Update the Domain Name as required. The field background changes to yellow indicating a change has been made.
4	To edit the **Default Gateway** select the current value. Update the Default Gateway as required. The field background changes to yellow indicating a change has been made.
5	Click . A validation message displays. **Note:** The NVR will send notifications to email addresses sharing its own domain. Additionally, it can send notifications to email addresses in other domains provided those domains' SMTP servers have allowed incoming emails from the NVR's domain. Owners of email addresses in other domains should contact their email administrator to ensure they will be able to receive alert notifications from the NVR's domain. The delivery of email notifications sent to email addresses provided by Internet Service Providers (ISPs, such as, Yahoo or Gmail) cannot be guaranteed because those ISPs have their own restrictions that may interfere.

- End -

Setting Up Email Alerts

To set up email notifications you are required to build the recipient list and enable the notifications each address on the recipient list is to receive.

Outbound Mail Server

To allow the Email Alerts functionality with the NVR, you must enter the outbound mail server's, IP address or hostname. In addition to the IP address/hostname the following options are also available for configuration:

- **Server requires authentication** - Select to enter the username and password required to authenticate the NVR with the mail server.
- **Encryption** - The SMTP connection between the NVR and the SMTP server can be encrypted using TLS or SSL.

Note:
The use of a hostname is mandatory when using TLS or SSL encryption. The hostname must match the entry in the CN (Common Name) field of the server's certificate.

- **Custom Sender** - Allows you to enter a custom senders address when username authenication is required by the SMTP server. When not configured an automatically generated sender address will be used.

Procedure 8-25
Configuring the Outbound Mail Server

Step	Action
1	Select **Advanced**.
2	Select **Email Alerts**. The Email Alerts page opens.
3	Click next to the Outbound mail server field.
4	Enter the Outbound mail server **IP address or hostname** in the field.
5	(Optional) Select the **Server requires authentication** checkbox. The username and password fields display. a Enter your **username** in the field. b Enter your **password** in the field.
6	Select the required encryption type; **None**, **TLS** or **SSL**. **Note:** When the SSL option button is selected you must select the Server TCP port from the dropdown.
7	(Optional) Select the **Custom sender** checkbox. The Sender email address field displays. a Enter an **email address** in the field.
8	Click .

- End -

Building the Recipient List

The recipient list is made up of email addresses which will receive email alerts. The alerts that each address will receive is defined by the alert category associated with that address and whether or not that category has been enabled.

Procedure 8-26
Building the Recipient List

Step	Action
1	Select **Advanced**.
2	Select **Email Alerts**. The Email Alerts page opens.
3	Click . The Add/Update Alert Recipient pop up displays.
4	Select the **New Recipient Email Address** option button.
5	Enter the recipient's email address in the field. Or

If the user is already receiving notifications, you can choose the user's email address from the **Use Recipient Email address** dropdown menu.

6 Select the **Alert Categories** using the checkboxes.

7 Click .

8 Verify that the email address has been added to the recipient list for each alert category. You can check by viewing recipients for each alert category listed in the table on the Email Alerts page.

9 To send a test email to a recipient list, select the alert you want to test an click **Test**.

10 Once you have the email recipients configured, you need to enable alerts.

- End -

Enabling and Disabling Email Alerts

Once recipient addresses have been entered and alert categories assigned you can configure which email alerts should be enabled for each recipient.

Procedure 8-27
Enabling and Disabling Email Alerts

Step	Action
1	Select **Advanced**.
2	Select **Email Alerts**. The Email Alerts page opens.
3	Select the checkbox for each alert you want to enable from the **Alert Category** list.
4	Click or .
5	After enabling email alerts, an email is sent to the selected recipients when the appropriate alert is triggered.

- End -

Disabling Email Alerts for a Camera

You can disable Email Alerts for a specific camera. This allows you to suppress email alerts from cameras which are known to be malfunctioning.

Caution

This procedure will disable the cameras ability to stream live video.

Attempting to modify some of the parameters of the camera such as Password Group or PTZ will not be possible when the camera is disabled.

Procedure 8-28
Disabling Email Alerts for a Camera

Step	Action
1	Select **Devices**.

2 Select **List**.

The Video List page opens.

3 Click in the camera record of the camera you want to disable email alerts.

The Function & Streams page opens.

4 Select the **General** tab.

The General page opens.

5 Click the Camera **Video Disable** option button.

6 Click .

In the camera record on the Video List page the IP address indicates **DISABLED**.

- End -

Procedure 8-29
Re-enabling Email Alerts for a Camera

Step	Action

1 Select **Devices**.

2 Select **List**.

The Video List page opens.

3 Click in the camera record of the camera you want to re-enable email alerts.

The Function & Streams page opens.

4 Select the **General** tab.

The General page opens.

5 Click the Camera Streaming **Enable** option button.

6 Click .

In the camera record on the Video List page the IP address no longer indicates **DISABLED**.

- End -

Removing an Address from the Recipient List

You can remove recipient addresses from each alert category.

Procedure 8-30
Remove an Address from the Recipient List

Step	Action

1 Select **Advanced**.

2 Select **Email Alerts**.

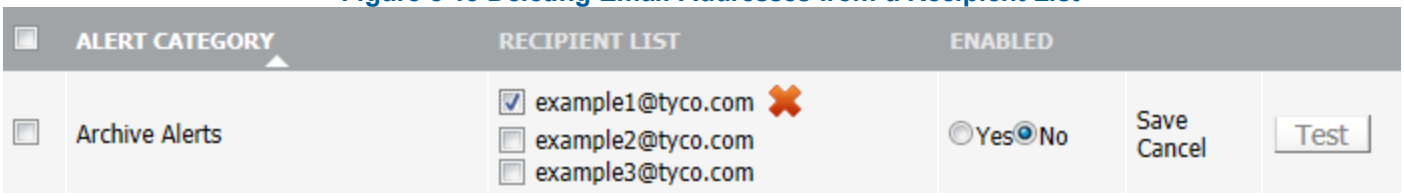
The Email Alerts page opens.

3 Scroll to the Alert Category you want to remove a recipients address from.

4 Select .

5 Select the checkbox next to the address you want to remove.

Figure 8-15 Deleting Email Addresses from a Recipient List



6 Select .

The page refreshes and the address is removed from the recipient list.

- End -

Alert Logs

The Alert Logs page displays a list of email alerts which have been sent by the NVR. Each entry includes the recipient email address, alert type and information sent with the time and date the alert occurred.

Procedure 8-31
Displaying the Email Alerts Log

Step	Action
1	Select **Advanced**.
2	Select **Email Alerts**.
3	Select the **Alert Logs** tab. The Alert Logs page opens.

- End -

Clearing the Alert Logs Page

All email alerts can be cleared from the Alert Logs page.

Procedure 8-32
Clearing the Alert Logs Page

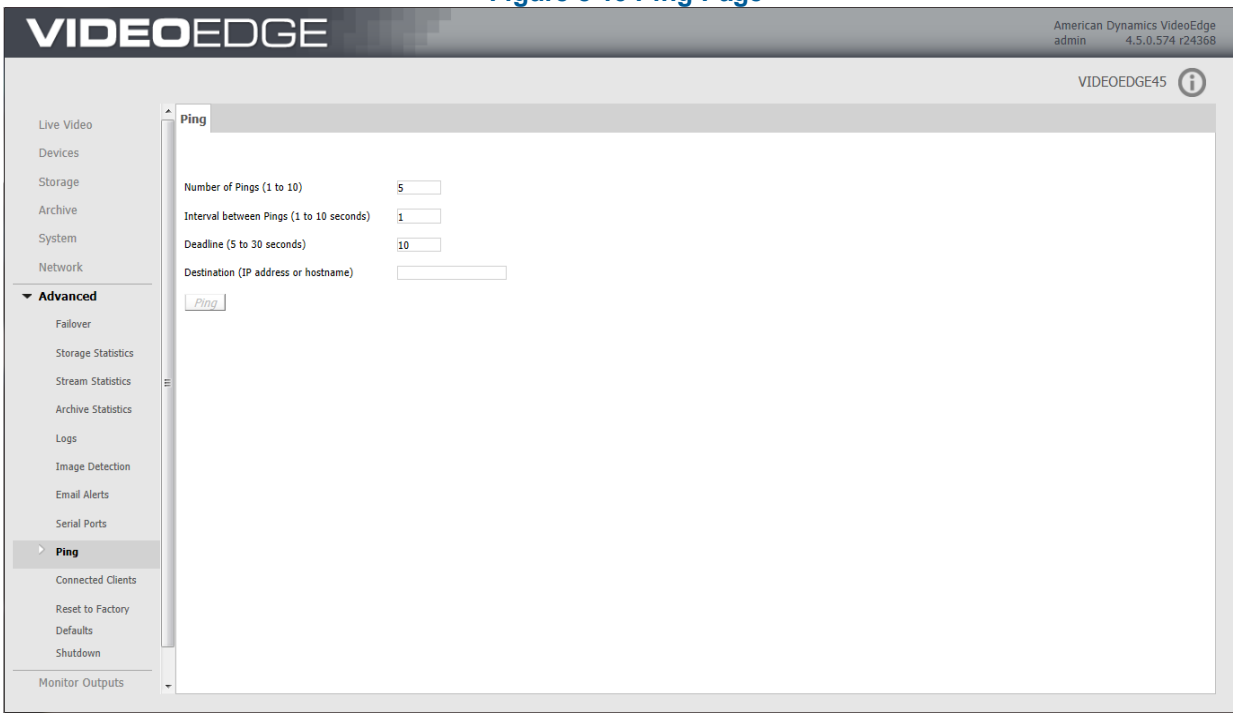
Step	Action
1	Select **Advanced**.
2	Select **Email Alerts**.
3	Select the **Alert Logs** tab. The Alert Logs page opens.
4	Click **Clear Logs**.

- End -

Ping

The Ping page allows you to verify the operation and confirm communication with cameras and devices on the NVR's network(s).

Figure 8-16 Ping Page



Procedure 8-33
Pinging other Devices

Step	Action
1	Select **Advanced**.
2	Select **Ping**. The Ping page opens.
3	Enter the **Number of Pings** to send to the selected device (Min 1, Max 10).
4	Enter the **Interval between Pings** (Min 1 second, Max 10 seconds).
5	Enter the **Deadline** the NVR is to wait for a response (Min 5 seconds, Max 30 seconds).
6	Enter the **Destination (IP address or hostname)**. **Note:** A DNS must be present to ping a device via a hostname.
7	Click **Ping**. Results will be displayed below the Ping button.

- End -

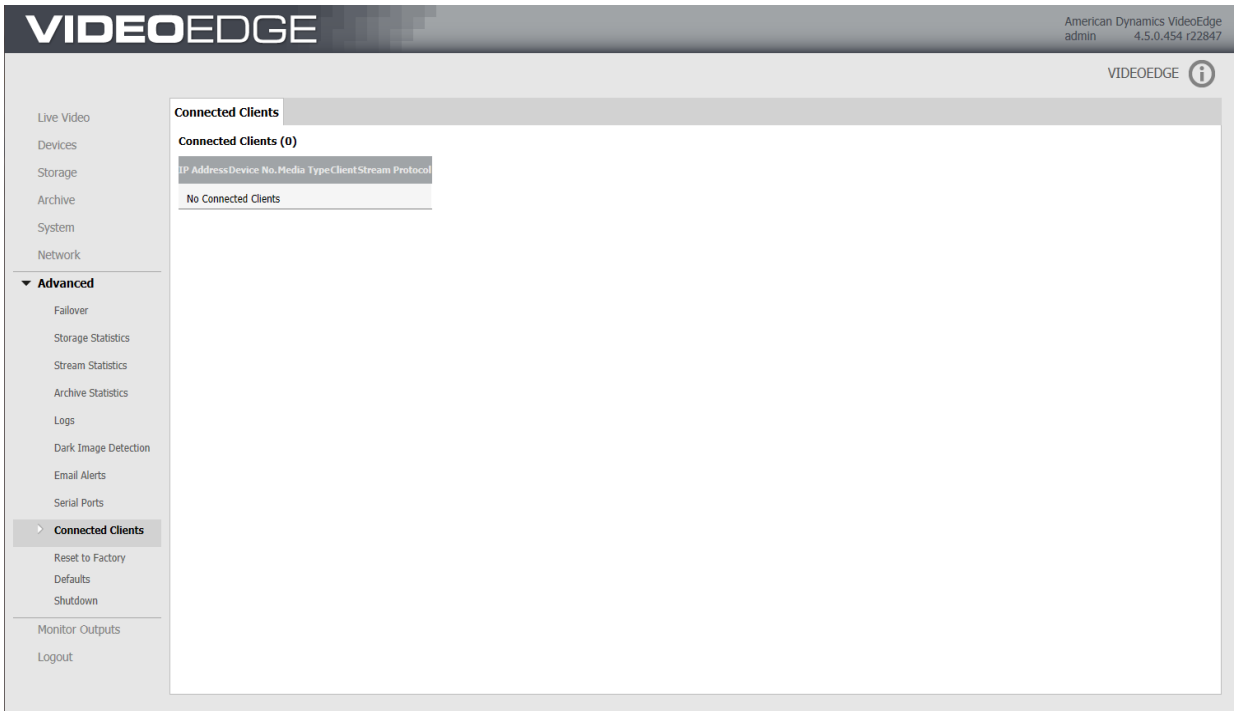
Connected Clients

You can view the clients currently connected to the NVR using the Connected Clients sub menu. The NVR will only register a client as connected if it is actively receiving a video/audio stream from the NVR.

The Connected Client page displays information relating to the clients currently connected to the NVR and their activity. The following information is displayed when a client is connected to the NVR:

- The IP Address of the device which is streaming audio and video from the NVR via a client.
- The Camera Number for each camera being streamed from the NVR for each client connected to the NVR.
- The Media Type being streamed; either audio or video or both.
- The Client type, for example victor unified client or QuickTime.
- The Streaming Protocol being used.

Figure 8-17 Connected Clients Page



Procedure 8-34
Viewing Connected Clients

Step	Action
1	Select **Advanced**.
2	Select **Connected Clients**. The Connected Clients page opens.

- End -

Reset to Factory Defaults

Reset Factory Defaults (Administration Interface)

The Reset Factory Defaults functionality allows you to revert several of the NVR's characteristics back to their default settings it will however not implement any changes to the servers Linux Operating System. During a Reset Factory Defaults function the recorder will not be able to record or display live video until the process is complete.

Once the Reset Factory Defaults is complete you will have to reconfigure the NVR using the Setup Wizard.

The following settings will be affected when carrying out a Reset Factory Defaults function:

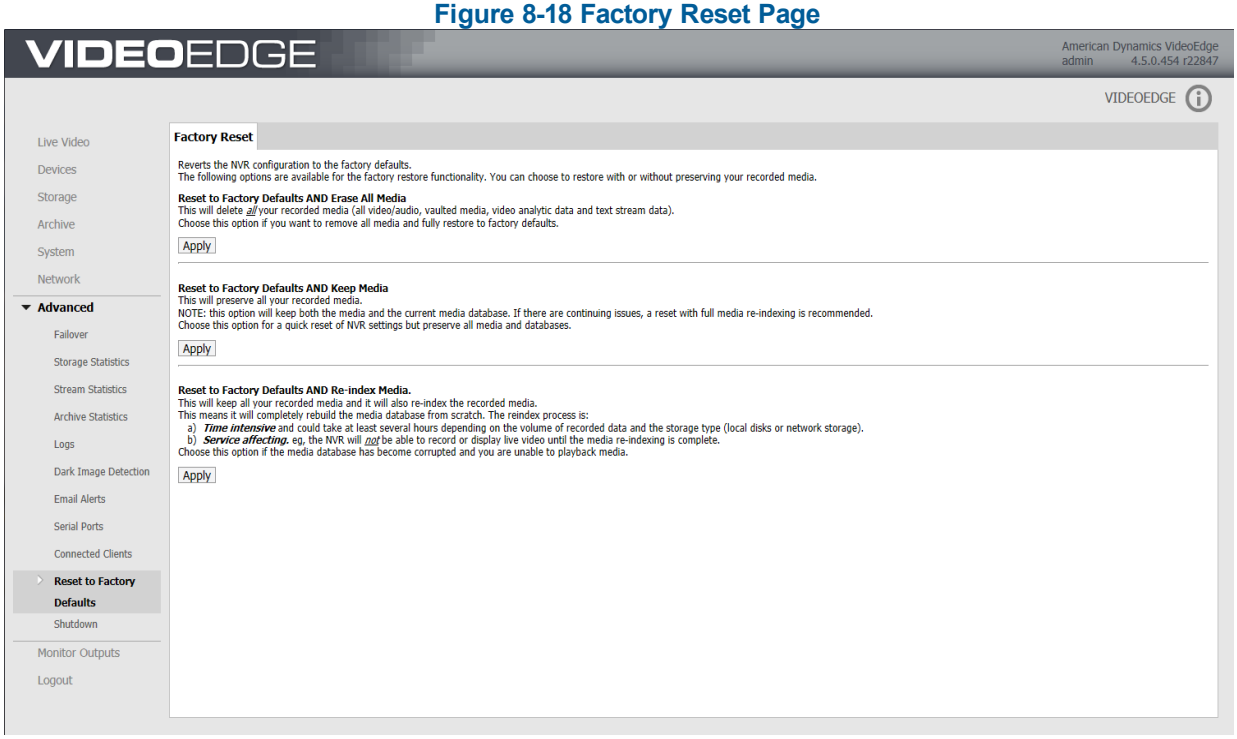
- **Storage** settings, configured using the NVR Administration interface will be erased.
- **Failover** settings, if configured will be erased.
- **User Passwords** for all user roles will be reset to the factory defaults.
- **Alarm** settings, if configured will be erased.
- **Saved Media files (video/audio)**, the NVR supports several options for keeping or deleting the Saved Media files, they are as follows:
    - **Reset to Factory Defaults AND Erase All Media** - This will delete all your recorded media (video/audio, protected media and video analytic data). Choose this option if you want to remove all media and fully restore to factory defaults.
    - **Reset to Factory Defaults AND Keep Media** - This will preserve all your recorded media. Choose this option for a quick reset of NVR settings but preserve all media and databases.

Note:
This option will keep both the media and the current media database. If there are continuing issues a reset with full media re-indexing is recommended.

- **Reset to Factory Defaults AND Re-index Media** - This will keep all your recorded media and it will also re-index the recorded media. The media database will be completely rebuilt during this process. Choose this option if the media database has become corrupt and you are unable to playback media.

Note:
The re-index process is time intensive and can take several hours to complete depending on the volume of recorded data and the storage type (local disks or network storage). The NVR will not be able to record or display live video until the media re-indexing is complete.

Figure 8-18 Factory Reset Page


VIDEOEDGE
American Dynamics VideoEdge
admin 4.5.0.454 r22847
VIDEOEDGE
Live Video
Devices
Storage
Archive
System
Network
Advanced
Failover
Storage Statistics
Stream Statistics
Archive Statistics
Logs
Dark Image Detection
Email Alerts
Serial Ports
Connected Clients
Reset to Factory Defaults
Shutdown
Monitor Outputs
Logout
Factory Reset
Reverts the NVR configuration to the factory defaults.
The following options are available for the factory restore functionality. You can choose to restore with or without preserving your recorded media.
Reset to Factory Defaults AND Erase All Media
This will delete all your recorded media (all video/audio, vaulted media, video analytic data and text stream data).
Choose this option if you want to remove all media and fully restore to factory defaults.
Apply
Reset to Factory Defaults AND Keep Media
This will preserve all your recorded media.
NOTE: this option will keep both the media and the current media database. If there are continuing issues, a reset with full media re-indexing is recommended.
Choose this option for a quick reset of NVR settings but preserve all media and databases.
Apply
Reset to Factory Defaults AND Re-index Media.
This will keep all your recorded media and it will also re-index the recorded media.
This means it will completely rebuild the media database from scratch. The reindex process is:
a) Time intensive and could take at least several hours depending on the volume of recorded data and the storage type (local disks or network storage).
b) Service affecting. eg, the NVR will not be able to record or display live video until the media re-indexing is complete.
Choose this option if the media database has become corrupted and you are unable to playback media.
Apply

- **Email Alerts** will all be disabled and any email addresses entered for alert notifications will be erased. The SMTP Server address will also be erased.
- **WAN Settings** will be reset to factory defaults.
- **Cameras** will be erased leaving the Video List empty.

> **Note:**
> Settings linked to the OS will not be affected. These include Network Settings, Services (eg. NTP, DHCP and so on) and the System Settings. The NVR License will also not be affected.

Procedure 8-35
Reset to Factory Defaults

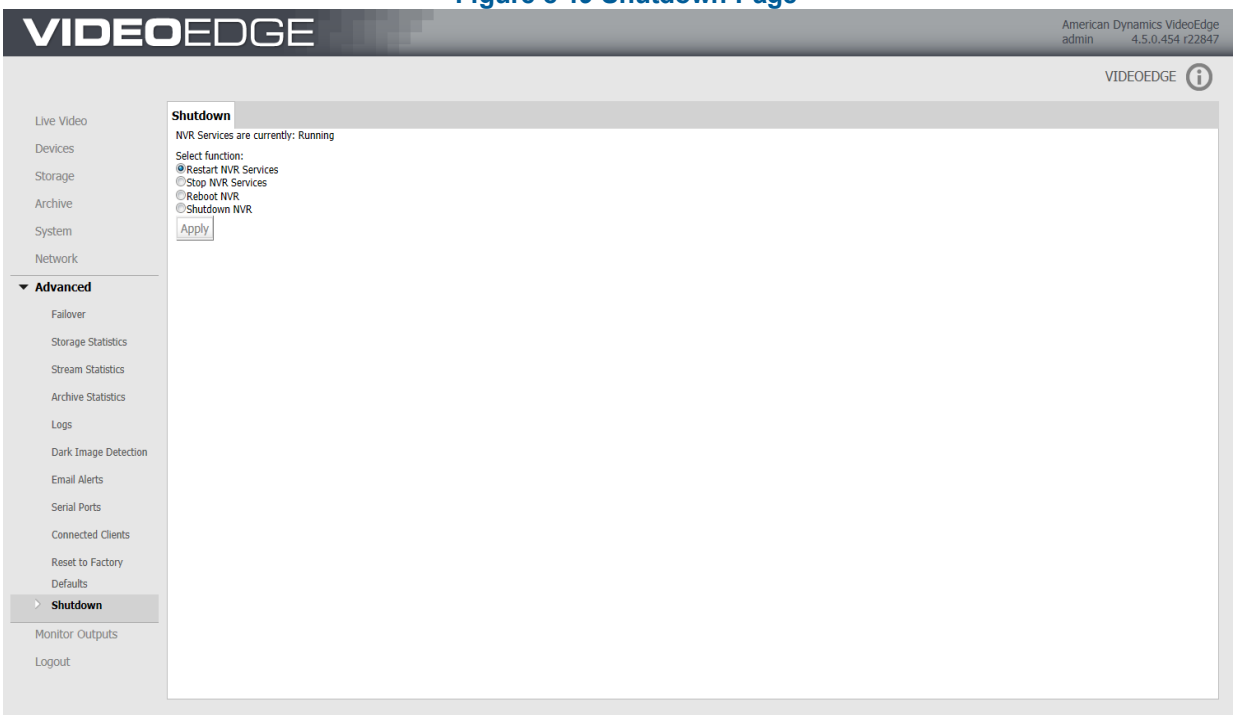
Step	Action
1	Select **Advanced**.
2	Select **Reset Factory Defaults** The Reset Factory Defaults page opens.
3	Select one of the three Reset Factory Defaults options available: **Reset to Factory Defaults AND Erase All Media** Or **Reset to Factory Defaults AND Keep Media** Or **Reset to Factory Defaults AND Re-index Media.**
4	Click **Apply**.
5	A warning message displays, click **OK** to continue.

- End -

System Shutdown

The Shutdown page allows you to Restart the NVR Services, Stop NVR Services, Reboot the NVR and Shutdown the NVR.

Figure 8-19 Shutdown Page



Restart NVR Services

The Shutdown page allows you to restart the NVR services, this will restart the NVR software such as recording and playback services, however it will not restart the operating system. Restarting NVR services is faster than rebooting the NVR.

Procedure 8-36
Restart NVR Services

Step	Action
1	Select **Advanced**.
2	Select **Shutdown**.
	The Shutdown page opens.
3	Select **Restart NVR Services** option button.
4	Click **Apply**.

- End -

Stop NVR Services

NVR Services can be stopped permanently. By stopping NVR services you can release resources and maximize system performance of some SUSE features.

Note:
It is highly recommended that you stop NVR Services before configuring storage.

Procedure 8-37
Stop NVR Services

Step	Action
1	Select **Advanced**.
2	Select **Shutdown**. The Shutdown page opens.
3	Select **Stop NVR Services** option button.
4	Click **Apply**. A message box opens, “This will stop NVR Services. Are you sure you want to continue?”
5	Click **Yes**. The confirmation message, “NVR Services have stopped - The NVR will not record or display live media until the services are restarted” displays and the NVR services are disabled.” **Note:** When you have stopped NVR services, use the Restart NVR Services option to restart the services.

- End -

Reboot the NVR

The Shutdown page allows you to reboot the NVR, this will cause the NVR to go through a soft reboot when applied.

Procedure 8-38
Reboot the NVR

Step	Action
1	Select **Advanced**.
2	Select **Shutdown**. The Shutdown page opens.
3	Select **Reboot NVR** option button.
4	Click **Apply**.

- End -

Shutdown the NVR

The Shutdown page allows you to shutdown the NVR, this will cause the NVR to fully power down when applied.

Procedure 8-39
Shutdown the NVR

Step	Action
1	Select **Advanced**.
2	Select **Shutdown**. The Shutdown page opens.
3	Select **Shutdown NVR** option button.
4	Click **Apply**.
	Note: To restart the NVR after it has been shut down it must be manually turned on at the server.

- End -

Appendix A - NVR Troubleshooting

Overview

This topic covers useful troubleshooting procedures to aid you in the use of your NVR. For configuring settings through the NVR's embedded operating system YaST Control Center is used.

You must log in to the VideoEdge NVR SUSE desktop as a root user in order to access the YaST Control Center.

A Remote Desktop Connection can also be established allowing you to edit the network settings using the NVR desktop from a remote client.

Accessing the Remote Desktop

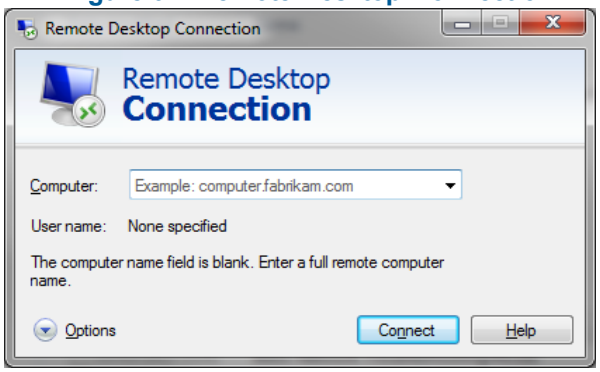
RDP Remote Desktop

The following procedures will allow you to log on and log off RDP remote desktop.

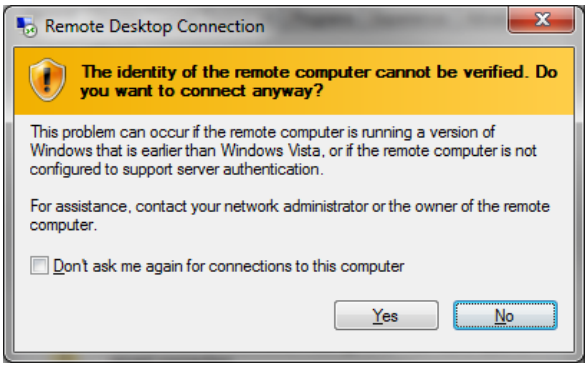
Procedure 9-1
Logging in to RDP Remote Desktop

Step	Action
1	Click **Start** in the Windows taskbar.
2	Select **All Programs**.
3	Select **Accessories**.
4	Select **Remote Desktop Connection**. The Remote Desktop Connection application opens.

Figure 9-1 Remote Desktop Connection

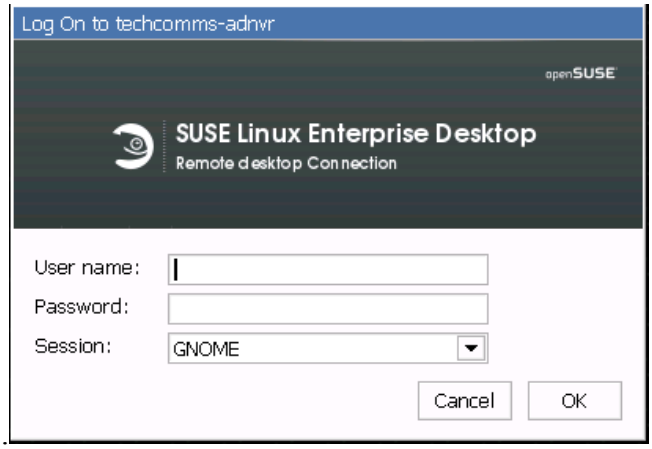


5	Enter the **NVR's IP Address** in the Computer field.
6	Click **Connect**. A warning displays.


Remote Desktop Connection
The identity of the remote computer cannot be verified. Do you want to connect anyway?
This problem can occur if the remote computer is running a version of Windows that is earlier than Windows Vista, or if the remote computer is not configured to support server authentication.
For assistance, contact your network administrator or the owner of the remote computer.
Don't ask me again for connections to this computer
Yes
No

7 Click **Yes**.

The NVR's Desktop Login window opens



8 Enter the **username** and **password** in the corresponding fields.

9 Click **OK**.

- End -

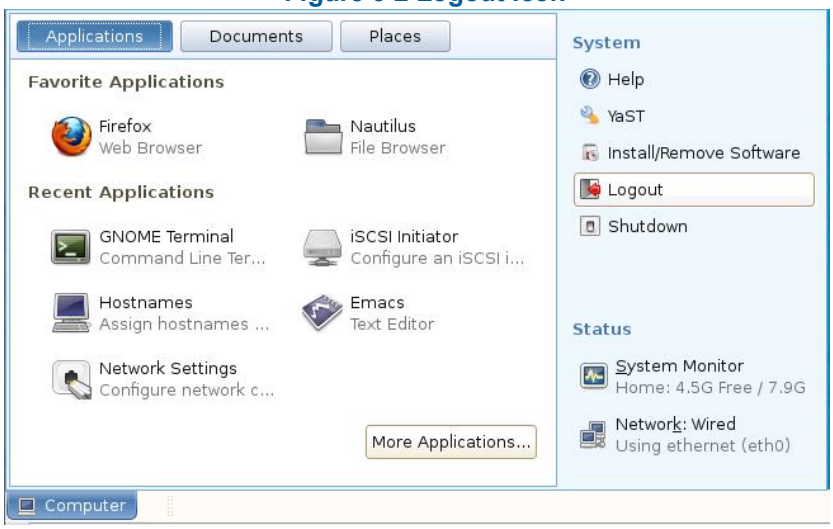
Logging Out of RDP Remote Desktop

When using RDP remote desktop it is important to logout correctly. Failure to do so will leave a high CPU process running on the NVR which will affect performance.

Procedure 9-2
Logging Out of RDP Remote Desktop

Step	Action
1	Click **Computer**.
2	Select **Logout**. A popup window opens.

Figure 9-2 Logout Icon



3 Select Log Out.

Remote Desktop window closes.

Figure 9-3 Logout Popup

Log Out of the Session
Log Out
Ends your session and logs you out.
Switch User
Suspends your session, allowing another user to log in and use the computer.
You are currently logged in as "root".
You will be automatically logged out in 60 seconds.
Help
Cancel

4 Select to close the Remote Desktop Connection application.

- End -

VNC Remote Desktop

The following procedures will allow you to log on and log off VNC remote desktop.

Procedure 9-3
Logging in to VNC Remote Desktop

Step	Action

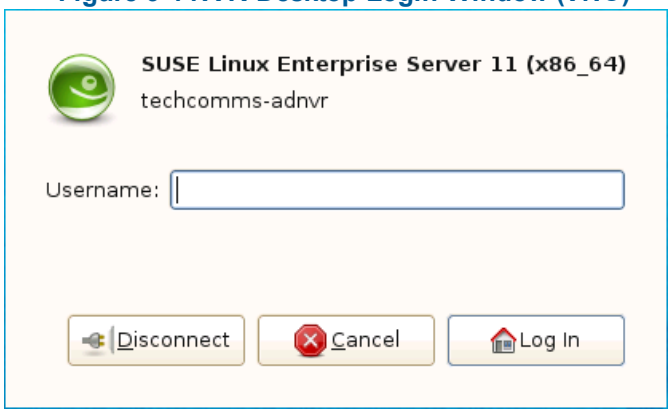
1 Launch your web browser and enter the NVR's IP address into the URL field followed by **:5801**. For example, if your NVR's IP address was 100.100.100.100, enter the address as below:

Note:
To use the remote desktop function your browser must be Java enabled, access is achieved through the TCP port 5801.

2 Press **[Enter]**.

The Remote Desktop page opens.

Figure 9-4 NVR Desktop Login Window (VNC)



3 Enter your **Username**.

Note:
If you are planning to change system settings, you need to login as the System Administrator (**root**).

4 Click **Log In**.

5 Enter your **Password**.

6 Click **Log In**.

- End -

Procedure 9-4
Logging Off VNC Remote Desktop

Step	Action
1	Click the **Disconnect** command button. VNC Remote Desktop is disconnected.

- End -

Editing Storage Partitions Using Partitioner

Configuring System Partitions on a Previously Configured Device

If you are installing or upgrading the NVR software on a device which has been previously configured, there may be system partitions created already which will require re-configuration. To ensure your NVR is set up correctly, all existing partitions should be deleted.

The requirements for configuration are three system partitions in addition to the media storage partitions. The system partitions are needed for regular operation of the NVR's operating system. The required system partitions that need to be created are outlined in the table below. Each partition size in the table is the recommended minimum value.

Note:
When the Linux system starts, it scans the hardware for all system devices. When it finds disks and partitions it assigns them unique names. Linux does not follow DOS or Windows XP style partition or drive naming convention. SUSE Linux uses a combination of bus type and alphanumeric suffixes.

The next part of the naming convention is an alphabetic designation for each physical drive, as an example the primary drive of a system using SCSI drives would be ***sda***. The secondary physical SCSI drive naming prefix would be ***sdb***. Tertiary physical drive would be ***sdc*** and so on.

As mentioned above the next part of the naming convention is a numerical suffix that denotes the partition. Each hard drive has a limit of 4 primary partitions. For example the primary SCSI drive of a system with four partitions would be named as follows: sda1, sda2, sda3 and sda4. As an example of the naming convention for the secondary drive it would be as follows: sdb1, sdb2, etc

One primary partition per drive can be assigned as an extended partition containing as many logical partitions as you require.

Table 9-1 Default Partitions Required for NVR

Size (GB)	Type	FS Type	Mount Point
16	Linux swap	Swap	swap
476	Linux native	XFS	/var
8	Linux native	Ext3	/

Procedure 9-5
Configuring System Partitions on a Previously Configured Device

Step	Action
1	In the Suggested Partioning page of the Partitioner Wizard, click **Create Partition Setup**.
2	Select **Custom Partitioning (for experts)**. The Expert Partitioner page displays.
3	**Select the disk** on which you want to create the system partitions from the system view tree.
4	**Delete** all of the existing partitions, by selecting the partition and clicking Delete.
5	Click **Add**.
6	Select **Primary Partition**.
7	Enter the required partition size by selecting **Custom Size** and entering the amount of disk space (GB) you want to allocate to the partition.
8	Select **Next**.
9	Select the desired option from the **File System** dropdown. For swap select **Swap**, for var select **XFS** and for root select **Ext3**.
10	Enter the **Mount Point** for the media partition. For swap enter **swap**, for var enter **/var** and for root enter **/**.
11	Click **Finish**.
12	Create the required media storage partitions. Refer to Installation for more information.

- End -

Editing Media Partition Configurations

If you have completed the installation of the NVR hardware and software bundle, default media partitions will be configured on the NVR. You can change these media partitions to suit your specific requirements.

If you want to edit media partition configurations on a storage device you must remove all media folders already configured to be used by the NVR from the NVR configuration.

Note:
If a storage set contains only media folders from the device you want to edit media partition configurations on, you must move camera recording to other storage sets first.

NVR Services should also be stopped prior to changing partition configurations on devices that have already been added to the NVR.

Procedure 9-6
Editing Media Partitions

Step	Action
1	Select **Computer** from the NVR desktop.
2	Select **YaST** from the System menu. The Control Center opens.
3	Select **Partitioner** from the System menu.
4	A warning message opens. Click **Yes** to continue. The Expert Partitioner page opens.
5	Select the disk containing the media partitions you want to edit from the system view tree.
6	To edit the size of a partition: a Select the partition in the table and click **Resize**. b Select either **Maximum Size**, **Minimum Size** or **Custom Size** and enter the required partition size. c Click **OK**. Or To add a new partition: a Click **Add**. b Select either **Primary Partition** or **Extended Partition**. c Select the partition size. Select either **Maximum Size**, **Minimum Size** or **Custom Size** and enter the required partition size. If preferred you can choose an allocated region of the disk by entering a **Start Cylinder** and an **End Cylinder**. d Select **Next**. e If you are creating an extended partition, continue to step n otherwise continue to step f. f Click the **Format Partition** option button. g Select **XFS** from the **File System** dropdown. h Enter the **Mount Point** for the media partition, for example, **/data/media1**. i Select the **Fstab Options...** button. j Select the **Volume Label** option button.

k Enter a **Volume Label** in the field.

l Enter **rw,noatime,nodiratime,attr2,nobarrier,noquota,allocsize=4m,inode64,nodelaylog** in the **Arbitrary option** value field.

Note:
nobarrier should only be used on storage devices connected to disk controllers with battery backed cache.

m Click **OK**.

Click **Finish**.

Or

To delete a partition:

a Select the partition you want to delete.

b Click **Delete**.

c Click **Confirm** to delete the partition.

7 Click **Next**.

The Expert Partitioner page opens displaying the changes to be made to the partitions.

8 Click **Finish**.

The changes are made to the partitions.

- End -

System Disk Recovery

VideoEdge NVR

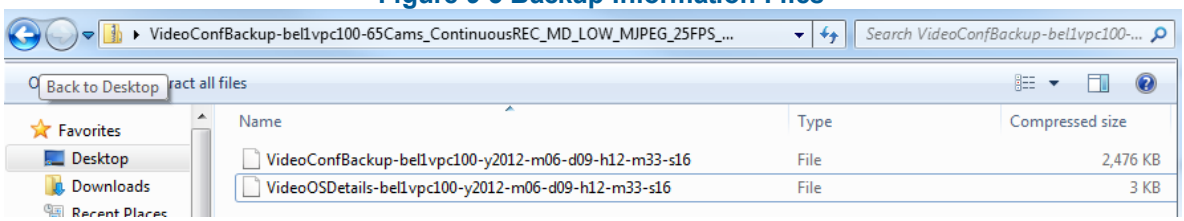
Should the NVR's system disk fail or the system disk becomes corrupt, the following procedure should be used for its recovery. You will need the following items:

1 A License file for the NVR.

2 A system backup file (from NVR 4.2+ only).

Note:
You must have carried out a "backup" procedure after all NVR configuration was completed at time of install. This is a zip file which when expanded contains two files. One of the files is the NVR backup information (Named "VideoConfBackup-xxxxxxxxxxx.zip". The other is a text file detailing Network and storage mount information. This text file, VideoOSDetails-xxxxxxxx.zip, is required to complete the recovery procedure.

Figure 9-5 Backup Information Files



3 A replacement disk greater than the existing system disk (if applicable).

4 NVR Software CD or USB drive.

Caution

To maintain all configured Tours and Salvos relating to your NVR in victor unified client, you should complete the VideoEdge System Disk Restore procedure before reconfiguring the NVR's LAN Interface Settings.

Procedure 9-7
VideoEdge NVR System Disk Recovery

Step	Action
1	Power **OFF** the NVR.
2	(Optional) Replace the system disk. This step is required if the system disk becomes corrupt.
3	Ensure all external connections are present.
4	Boot the NVR from the Software CD or USB drive.
5	Complete the Installation process as far as the VideoEdge Setup Wizard stage. Refer to Installation
6	Using YaST configure any iSCSI storage devices and connect to them.
7	Unzip the backup file in windows. Extract the file "**VideoOSDetails-VideoEdge-XXXXXXXX**" and save to a USB.
8	On the NVR, open the file "**VideoOSDetails-VideoEdge-XXXXXXXX**" from the USB in a text editor.
9	Copy all information from the Filesystem details section of the file.
10	Paste the copied text into a new file, **/tmp/fstab_backup** on the NVR. a Open the Terminal window. b Type **cat>/tmp/fstab_backup**. Press **[Enter]**. c Paste the copied text from the clipboard. Press **[Enter]**. d Press **[CTRL]** + **[D]**.
11	In the Terminal window type **videoedge# /opt/americandynamics/venvr/bin/restore_fstab/tmp/fstab_backup** and press **[Enter]**. Running this command restores all previous mountpoints.
12	On the NVR desktop double-click on the **NVR Administrator** icon, or on a remote machine use Internet Explorer to log into the NVR Configuration Interface. The default credentials are Username: **admin**, Password: **VIDEO!edge23**. The Setup Wizard opens at the Welcome page.
13	Click **Start** to begin the Setup Wizard.
14	Continue through the Setup Wizard until you reach the Network section of the wizard. Open the "**VideoOSDetails-xxxxxxxx**" file and use the network settings to help you configure the following: • Domain Name • Domain Name Servers • Default Gateway • RTSP Port • NTP Status • NTP Servers
15	Complete the remaining stages of the Setup Wizard.

When complete the NVR Configuration Interface opens at the Video List page.

16 Select **System**.

17 Select **Backup/Restore**.

The Backup page opens.

18 Select the **Restore** tab.

The Restore page opens.

19 Click **Browse**.

20 Navigate to and select the NVR backup file, "**VideoConfBackup-xxxxxxxxxxx.zip**".

Note:
You must use the zip file and not an individual sub file.

21 Click **Upload Backup**.

22 You will be prompted for media recovery, click **Yes**. Media recovery will take approximately 1 minute per 90-100GB of Storage.

Status messages will display informing you of current progress.

23 Once complete verify that all configuration parameters are correct.

- End -

Appendix B - ISO 3166 Country Codes

AF	AFGHANISTAN
AX	ÅLAND ISLANDS
AL	ALBANIA
DZ	ALGERIA
AS	AMERICAN SAMOA
AD	ANDORRA
AO	ANGOLA
AI	ANGUILLA
AQ	ANTARCTICA
AG	ANTIGUA AND BARBUDA
AR	ARGENTINA
AM	ARMENIA
AW	ARUBA
AU	AUSTRALIA
AT	AUSTRIA
AZ	AZERBAIJAN
BS	BAHAMAS
BH	BAHRAIN
BD	BANGLADESH
BB	BARBADOS
BY	BELARUS
BE	BELGIUM
BZ	BELIZE
BJ	BENIN
BM	BERMUDA
BT	BHUTAN
BO	BOLIVIA, PLURINATIONAL STATE OF
BQ	BONAIRE, SINT EUSTATIUS AND SABA
BA	BOSNIA AND HERZEGOVINA
BW	BOTSWANA
BV	BOUVET ISLAND
BR	BRAZIL
IO	BRITISH INDIAN OCEAN TERRITORY
BN	BRUNEI DARUSSALAM
BG	BULGARIA
BF	BURKINA FASO
BI	BURUNDI
KH	CAMBODIA
CM	CAMEROON
CA	CANADA
CV	CAPE VERDE
KY	CAYMAN ISLANDS
CF	CENTRAL AFRICAN REPUBLIC
TD	CHAD
CL	CHILE
CN	CHINA
CX	CHRISTMAS ISLAND
CC	COCOS (KEELING) ISLANDS
CO	COLOMBIA

KM	COMOROS
CG	CONGO
CD	CONGO, THE DEMOCRATIC REPUBLIC OF THE
CK	COOK ISLANDS
CR	COSTA RICA
CI	CÔTE D'IVOIRE
HR	CROATIA
CU	CUBA
CW	CURAÇAO
CY	CYPRUS
CZ	CZECH REPUBLIC
DK	DENMARK
DJ	DJIBOUTI
DM	DOMINICA
DO	DOMINICAN REPUBLIC
EC	ECUADOR
EG	EGYPT
SV	EL SALVADOR
GQ	EQUATORIAL GUINEA
ER	ERITREA
EE	ESTONIA
ET	ETHIOPIA
FK	FALKLAND ISLANDS (MALVINAS)
FO	FAROE ISLANDS
FJ	FIJI
FI	FINLAND
FR	FRANCE
GF	FRENCH GUIANA
PF	FRENCH POLYNESIA
TF	FRENCH SOUTHERN TERRITORIES
GA	GABON
GM	GAMBIA
GE	GEORGIA
DE	GERMANY
GH	GHANA
GI	GIBRALTAR
GR	GREECE
GL	GREENLAND
GD	GRENADA
GP	GUADELOUPE
GU	GUAM
GT	GUATEMALA
GG	GUERNSEY
GN	GUINEA
GW	GUINEA-BISSAU
GY	GUYANA
HT	HAITI
HM	HEARD ISLAND AND MCDONALD ISLANDS
VA	HOLY SEE (VATICAN CITY STATE)
HN	HONDURAS
HK	HONG KONG
HU	HUNGARY
IS	ICELAND

IN	INDIA
ID	INDONESIA
IR	IRAN, ISLAMIC REPUBLIC OF
IQ	IRAQ
IE	IRELAND
IM	ISLE OF MAN
IL	ISRAEL
IT	ITALY
JM	JAMAICA
JP	JAPAN
JE	JERSEY
JO	JORDAN
KZ	KAZAKHSTAN
KE	KENYA
KI	KIRIBATI
KP	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF
KR	KOREA, REPUBLIC OF
KW	KUWAIT
KG	KYRGYZSTAN
LA	LAO PEOPLE'S DEMOCRATIC REPUBLIC
LV	LATVIA
LB	LEBANON
LS	LESOTHO
LR	LIBERIA
LY	LIBYA
LI	LIECHTENSTEIN
LT	LITHUANIA
LU	LUXEMBOURG
MO	MACAO
MK	MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF
MG	MADAGASCAR
MW	MALAWI
MY	MALAYSIA
MV	MALDIVES
ML	MALI
MT	MALTA
MH	MARSHALL ISLANDS
MQ	MARTINIQUE
MR	MAURITANIA
MU	MAURITIUS
YT	MAYOTTE
MX	MEXICO
FM	MICRONESIA, FEDERATED STATES OF
MD	MOLDOVA, REPUBLIC OF
MC	MONACO
MN	MONGOLIA
ME	MONTENEGRO
MS	MONTSERRAT
MA	MOROCCO
MZ	MOZAMBIQUE
MM	MYANMAR
NA	NAMIBIA
NR	NAURU

NP	NEPAL
NL	NETHERLANDS
NC	NEW CALEDONIA
NZ	NEW ZEALAND
NI	NICARAGUA
NE	NIGER
NG	NIGERIA
NU	NIUE
NF	NORFOLK ISLAND
MP	NORTHERN MARIANA ISLANDS
NO	NORWAY
OM	OMAN
PK	PAKISTAN
PW	PALAU
PS	PALESTINE, STATE OF
PA	PANAMA
PG	PAPUA NEW GUINEA
PY	PARAGUAY
PE	PERU
PH	PHILIPPINES
PN	PITCAIRN
PL	POLAND
PT	PORTUGAL
PR	PUERTO RICO
QA	QATAR
RE	RÉUNION
RO	ROMANIA
RU	RUSSIAN FEDERATION
RW	RWANDA
BL	SAINT BARTHÉLEMY
SH	SAINT HELENA, ASCENSION AND TRISTAN DA CUNHA
KN	SAINT KITTS AND NEVIS
LC	SAINT LUCIA
MF	SAINT MARTIN (FRENCH PART)
PM	SAINT PIERRE AND MIQUELON
VC	SAINT VINCENT AND THE GRENADINES
WS	SAMOA
SM	SAN MARINO
ST	SAO TOME AND PRINCIPE
SA	SAUDI ARABIA
SN	SENEGAL
RS	SERBIA
SC	SEYCHELLES
SL	SIERRA LEONE
SG	SINGAPORE
SX	SINT MAARTEN (DUTCH PART)
SK	SLOVAKIA
SI	SLOVENIA
SB	SOLOMON ISLANDS
SO	SOMALIA
ZA	SOUTH AFRICA
GS	SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS
SS	SOUTH SUDAN

ES	SPAIN
LK	SRI LANKA
SD	SUDAN
SR	SURINAME
SJ	SVALBARD AND JAN MAYEN
SZ	SWAZILAND
SE	SWEDEN
CH	SWITZERLAND
SY	SYRIAN ARAB REPUBLIC
TW	TAIWAN, PROVINCE OF CHINA
TJ	TAJIKISTAN
TZ	TANZANIA, UNITED REPUBLIC OF
TH	THAILAND
TL	TIMOR-LESTE
TG	TOGO
TK	TOKELAU
TO	TONGA
TT	TRINIDAD AND TOBAGO
TN	TUNISIA
TR	TURKEY
TM	TURKMENISTAN
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US	UNITED STATES
UM	UNITED STATES MINOR OUTLYING ISLANDS
UY	URUGUAY
UZ	UZBEKISTAN
VU	VANUATU
VE	VENEZUELA, BOLIVARIAN REPUBLIC OF
VN	VIET NAM
VG	VIRGIN ISLANDS, BRITISH
VI	VIRGIN ISLANDS, U.S.
WF	WALLIS AND FUTUNA
EH	WESTERN SAHARA
YE	YEMEN
ZM	ZAMBIA
ZW	ZIMBABWE

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